

DELAWARE VALLEY SCHOOL DISTRICT

PLANNED INSTRUCTION

A PLANNED COURSE FOR:

Forensic Science A

Grade Level: 10, 11, 12

Date of Board Approval: 2018

*NOTE: Example laboratory demonstrations/experiments and/or activities that have been highlighted in the core activities or assessments can be found in public file "BakerL" in a file titled "Resources – Forensic Science Curricula."

Planned Instruction

Title of Planned Instruction: Forensic Science A

Subject Area: Science

Grade(s): 10, 11, 12

Course Description:

This science course will provide academic theories and extensive lab experiences about the application of science to criminal investigation and the role of science in the criminal justice system. Semester topics include but are not limited to Introduction to Forensic Science; Testimonial Evidence; Physical Evidence and the Legal System; Materials Evidence Collection and Processing; Forensic Biology; Forensic Pathology; and Crime Scene Processing and Analysis. Students with diverse learning styles will have the opportunity to use a variety of learning methods to attain mastery of the skills and concepts necessary for success. These methodologies include direct instruction, laboratory activities and/or demonstrations, hands-on creative projects, interaction with various text and media, collaboration with peers, guided inquiry, and written assignments. This course is designed as an introduction to criminal investigation and applied scientific knowledge to the legal system. Forensic Science B is highly recommended but is not required as a follow up to this course.

Time/Credit for the Course: Half Year Course, meeting daily for 46 minutes / 0.5 Credits

Curriculum Writing Committee: Lindsay Baker and Chelsea Ryder

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DELAWARE VALLEY SCHOOL DISTRICT

Curriculum Map

1. Marking Period One -Overview with time range in days: 45 Days

UNIT 1: Introduction to Forensic Science

UNIT 2: Testimonial Evidence

UNIT 3: Physical Evidence

Marking Period One

Goals and Understanding of:

- Nature and role of forensic science
- Value of forensic science to society
- Historical development of forensic science
- Nature of scientific method and application to the real world
- Role scientific method plays in all aspects of forensic science and investigation
- Explain how forensic science relies on multiple disciplines to solve crimes
- List and discuss the specialized fields utilized by forensic scientists
- Classification of Evidence
- Utilization of Evidence
- Locard Exchange Postulate
- Corpus Delicti – Means, Motive, Opportunity
- Linkage vs. Exclusion
- Eyewitness vs. Expert witness
- Origin of Legal Systems
- Outline steps of the judicial process
- Define *observation* and describe what changes occur in the brain
- Describe examples of factors influencing eyewitness accounts of events
- Compare the reliability of eyewitness testimony with what actually happened
- Relate observation skills to their use in forensic science
- Define *forensic science*
- Practice and improve your observation
- Evaluate the importance of a code of ethics to professional organizations.
- Compare and contrast an interview and an interrogation.
- Describe the cognitive approach for interviewing.
- Discuss special considerations for interviewing children.
- Differentiate between the models of interrogation.
- Linkage as result of “trace” evidence
- Hair, Fibers, Glass, Paint, Soil, Sand
- Identify and describe common weave patterns of textile samples
- Compare and contrast various types of fibers through physical and chemical analysis
- Describe principle characteristics used to identify common fibers
- Apply forensic science techniques to analyze fibers
- Describe variations in the structure of the medulla, cortex, and cuticle

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DELAWARE VALLEY SCHOOL DISTRICT

- Distinguish between human and nonhuman hair
- Explain how hair can be used in a forensic investigation

2. Marking Period Two -Overview with time range in days: 45 days

UNIT 4: Forensic Pathology

UNIT 5: Forensic Biology

UNIT 6: Crime Scene Processing and Analysis

Goals and Understanding of:

- Discuss the history of coroners and medical examiners.
- Describe the steps of a death investigation.
- Discuss how laboratory tests are used to determine the contributing factors that led to someone's death.
- Compare and contrast collection of biological and non-biological evidence during an autopsy.
- Describe the organization and structure of the autopsy report.
- Protocol for Forensic Autopsy
- Distinguish between four manners of death: natural, accidental, suicidal, and homicidal
- Distinguish between cause, manner, and mechanisms of death
- Explain the development of rigor, algor, and livor mortis following death
- Stages of Decomposition
- Specific wound analysis
- Identify body systems and discuss their forensic implications.
- Discuss how investigators study injuries to determine the extent, or degree, of injury.
- Differentiate between the three types of blunt-force trauma.
- Discuss the four types of sharp-force trauma.
- Use evidence on stomach contents to estimate time of death
- Use insect evidence to estimate time of death
- Explain how environmental factors can affect the estimated time of death
- Discuss the life cycle of insects.
- Estimate time of death using insect evidence.
- Examine the effects of insects on human remains.
- Describe how bone is formed
- Distinguish between male and female skeletal remains
- Explain how bones contain a record of injuries and disease
- Describe how a person's approximate age could be determined
- Explain the differences in facial structures among races
- Discuss the role of mitochondrial DNA in bone identification
- Determining Age, Race, Gender, Height
- Compare and contrast permanent and deciduous human dentition.
- Recognize the value of odontology in forensic investigations.
- Explain how teeth and craniofacial features are helpful in estimating age, ancestry, and sex.
- Differentiate between the dentition of humans and other animals.

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DELAWARE VALLEY SCHOOL DISTRICT

Curriculum Plan

Unit 1: Introduction to Forensic Science **Time Range in Days:** Approximately 7-15

Standard(s): PA Academic Standards, PACS Reading and Writing for Science and Technology, and Science as Inquiry

Standards Addressed:

PACS: CC.3.5.11-12.B.; CC.3.5.11-12.E.; CC.3.6.11-12.C.; CC.3.6.11-12.D.; CC.3.6.11-12.E.; CC.3.6.11-12.G.

Science as Inquiry: 3.1.12.A2, 3.1.12.A9, 4.5.12.F, 4.3.12.C, 4.1.12.F

PA Academic Standards: 3.1.12.A5.; 3.1.12.A8.; 3.1.12.A9.; 3.4.12.A2; 3.4.12.A3; 3.4.12.B1.

Anchor(s): S11.A.1; S11.B.1; S11.A.1.2; S11.A.1.3; S11.A.2.1; S11.A.3.1; S11.A.3.2; S11.A.3.3; S11.B.3.2

Big Idea # 1: Asking questions and defining problems is/are essential to developing a scientific habits of mind.

Essential Questions:

- What kinds of questions do forensic scientists ask?

Concepts:

- Define and understand the role of Forensic Science in legal investigations
- Importance of science in the Justice System and Society
- Understand the role of the scientific method in all aspects of Forensic Science

Competencies:

- Summarize the history of Forensic Science
- Describe careers in different fields of Forensic Science
- Solve common logic problems
- Strengthen observation and inquiry skills through laboratory analysis and activities

Big Idea # 2: Scientists construct mental and conceptual models of phenomena to represent ways of knowing that are represented and communicated by words, diagrams, charts, graphs, images, and symbols.

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DELAWARE VALLEY SCHOOL DISTRICT

Essential Questions:

- In what ways do scientists communicate their knowledge?

Concepts:

- Define and understand the role of various scientific disciplines in legal investigations
- Design/plan investigations appropriate for answering scientific questions or testing hypotheses
- Use/draw diagrams and/or models to demonstrate understanding of science concepts, structures, relationships, and processes.

Competencies:

- Explain how forensic scientists communicate their findings.
- Describe how multiple disciplines interact to solve crimes.
- Outline the steps of the judicial process from identification of a suspect through the trial.

Overview: Forensic science is a multiple disciplinary science course that focuses on the connection and application of science to the criminal justice and legal system. Current events relating to scientific issues and the events that occur within the criminal justice system will be highlighted. Students will be introduced to the history and value of forensic science to society. In this introduction students will be acquainted with the various scientific disciplines under the wide umbrella of forensic science. Additionally, students will be presented with introductory case studies that outline the impact of forensic science on the legal system.

Goals

For students to better understand how scientific research and investigation applies to real-world situations and to identify patterns in nature by identifying the many factors that help to understand the value of forensic science to society as well as the different agencies and interdisciplinary practices that play a pivotal role in an investigation.

Objectives:

(Students will be able to)

1. State the goals of science (DOK 1)
2. Recall the steps of the scientific method (DOK 1)
3. Conduct and analyze one or more scientific investigations (DOK 2 and DOK 4)
4. Explain how scientific attitudes generate new ideas (DOK 3)
5. Assess the importance of peer review (DOK 3)
6. Explain what a scientific theory is (DOK 3)
7. Connect the relationship between science and society (DOK 4)
8. Recall what disciplines play a pivotal role in forensic investigations. (DOK 1)
9. Observe and evaluate scenarios using inductive and deductive reasoning skills. (DOK 2)
10. Draw conclusions about the use of forensic science in the judicial system. (DOK 3)

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DELAWARE VALLEY SCHOOL DISTRICT

Core Activities and Corresponding Instructional Methods:

Due to ongoing current events, cases, technology, and topics in the course, flexibility is needed by the instructor in the presentation of materials and content of this course.

1. Students will take notes via PowerPoint presentation or Smart Notebook software and use graphic organizers and concept maps to organize major concepts of the content being presented.
2. Students will provide a written response to daily at the bell prompted discussion questions. For example: "What is the value of forensic science to our community?" "What are the uses of physical evidence and analysis of this evidence?" "Can this analysis be flawed?"
3. Students will participate in and complete a group inquiry and logic problem activity to promote the development of communication and critical thinking skills needed throughout the course.
4. Students will complete a read-aloud, discussion, or jigsaw activity using the readings in Forensic Science & Criminalistics by Gaensslen, Harris, & Lee: chapter 1 to evaluate historical examples of scientific experiments, and recall the steps of the scientific method. In doing so, students will gain a deeper understanding of what science is and how certain scientific investigations have helped pave the way for current thinking in science and society.
5. Students will work at designated lab stations with partners to complete an observation, deductive and inductive reasoning analysis lab to simulate the cooperative learning environment of the different sections of the FBI crime lab. This will also serve as structured practice for students to use observational, communication, and reasoning skills.
6. Students will be introduced to historical figures that developed multiple forensic science disciplines through direct instruction of teacher generated PowerPoint or Smart Notebook software.
7. Students will conduct an independent investigation using computer-based skills on a forensic science discipline through media, text, or other resources on regarding careers available in that related field and current or previous cases highlighting that specific discipline and prepare a multimedia presentation to share knowledge of discipline studied.
8. Students will complete note sheets, worksheets, vocabulary evaluations, and content evaluations to demonstrate understanding of the concepts within the unit.
9. Students will read case studies to answer content questions, write summary paragraphs, or create materials for debate, discussion, or presentation.

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DELAWARE VALLEY SCHOOL DISTRICT

Assessments:

Diagnostic:

- Informal Questioning
- Teacher Observation
- Class Discussion
- At-the-Bell Questions

Formative:

- Informal Questioning
- Teacher Observation
- Class Discussion
- At-the-Bell Questions
- Assorted worksheets
- Teacher-generated assignments
- Laboratory Exercises
- Vocabulary practice
- Diagrams if applicable
- Study guides
- Video guides
- Current case logs/journals
- Structured class discussion
- Activities and Review Games

Summative:

- Career Study project
- History and Value of Forensic Science Unit Quizzes
- Common Assessment: History and Value of Forensic Science Unit Exam

Extensions:

1. Case Studies chosen by teacher
2. Develop and Design a new field of forensic science
3. Additional Observation Activities chosen by teacher
4. Team Collaboration Activity of career study.

Correctives:

1. Examples of additional Logic Problems
2. Student generated flashcards
3. Concept Mapping
4. Introduction outline of key terms
5. Teacher generated worksheets/diagrams

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DELAWARE VALLEY SCHOOL DISTRICT

6. Review questions at end of corresponding chapter

Materials and Resources:

Main Text Forensic Science and Criminalistics, Gaensslen, Harris, & Lee, 2008

1. Career Studies Project
2. Observation Lab
3. Logic Lab
4. Laptop Computers/ Chrome Books/ IPADS
5. Teacher Generated Worksheets
6. Ted Talks
7. Assorted Forensics Videos (FBI Files, Cold Case, Investigation Discovery, Forensic Files)

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Curriculum Plan

Unit 2: Testimonial Evidence

Time Range in Days: Approximately 7-15

Standard(s): PA Academic Standards, PACS Reading and Writing for Science and Technology, and Science as Inquiry

Standards Addressed:

PACS: CC.3.5.11-12.B.; CC.3.5.11-12.E.; CC.3.6.11-12.C.; CC.3.6.11-12.D.; CC.3.6.11-12.E.; CC.3.6.11-12.G.

Science as Inquiry: 3.1.12.A2, 3.1.12.A9, 4.5.12.F, 4.3.12.C, 4.1.12.F

PA Academic Standards: 3.1.12.A5.; 3.1.12.A8.; 3.1.12.A9.; 3.4.12.A2; 3.4.12.A3; 3.4.12.B1.

Anchor(s): S11.A.1; S11.B.1; S11.A.1.2; S11.A.1.3; S11.A.2.1; S11.A.3.1; S11.A.3.2; S11.A.3.3; S11.B.3.2

Big Idea # 1: Asking questions and defining problems is/are essential to developing a scientific habits of mind.

Essential Questions:

- How can objects (i.e. evidence) be directly associated with a suspect, victim, or scene?

Concepts:

- Students will be able to understand the Locard Exchange Postulate
- Students will understand their rights based on the 4th and 5th amendment to the constitution
- Students will be able to understand what determine the admissibility of evidence in the courtroom

Competencies:

- Students will be able to differentiate between evidence with class and individual characteristics.
- Students will be able to evaluate the validity of physical vs. testimonial evidence
- Students will be able to evaluate a crime scene in a logical manner applying the Locard Exchange Postulate
- Students will be able to differentiate between an expert witness and an eyewitness

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DELAWARE VALLEY SCHOOL DISTRICT

- Students will be able to separate interview techniques from psychological interrogation models.

Big Idea # 2: Observed patterns of forms and events guide organization and classification and prompt questions about relationships and the factors that influence them.

Essential Questions:

- How can patterns be used to associate evidence with a suspect, victim, or scene?

Concepts:

- Students will be able to understand the Locard Exchange Postulate
- Students will understand their rights based on the 4th and 5th amendment to the constitution
- Students will be able to understand what determine the admissibility of evidence in the courtroom

Competencies:

- Students will be able to differentiate between evidence with class and individual characteristics.
- Students will be able to evaluate the validity of physical vs. testimonial evidence
- Students will be able to evaluate a crime scene in a logical manner applying the Locard Exchange Postulate
- Students will be able to differentiate between an expert witness and an eyewitness
- Students will be able to differentiate between interview techniques from psychological interrogation models.

Overview: Forensic science is a multiple disciplinary science course that focuses on the connection and application of science to the criminal justice and legal system. Current events relating to scientific issues and the events that occur within the criminal justice system will be highlighted. Current events/cases/investigations will be incorporated freely throughout each unit. Students will build upon prior knowledge of the legal system incorporating the use of testimonial evidence and the legal system.

Goals:

Students will be able to understand the importance of testimonial evidence in an investigation. They will be introduced to procedures on how to collect testimonial evidence from eye witnesses, victims, suspects, and experts and how it is analyzed. Students will understand the compelling nature and role of testimonial evidence in the courtroom. Students will understand how physical evidence has more associative value than probative value.

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DELAWARE VALLEY SCHOOL DISTRICT

Objectives:

(Students will be able to)

1. Identify the difference between probative and associative value when it comes to evidence (DOK 1)
2. Discuss the importance of significant cases that have impacted forensic science (DOK 2)
3. Interpret the steps of the judicial process from identification of a suspect through the trial (DOK 2)
4. Classify evidence as to whether it is physical or testimonial (DOK 2)
5. Differentiate between an inference and an observation and describe what changes occur in the brain while making observations (DOK 3)
6. State examples of factors influencing eyewitness accounts of events (DOK 1)
7. Draw conclusions on the reliability of eyewitness testimony with what actually happened during the event (DOK 3)
8. Relate observation skills to their use in forensic science (DOK 2)
9. Compare and contrast an interview and an interrogation (DOK 3)
10. Describe the cognitive approach for interviewing (DOK 1)
11. Design special considerations for interviewing children (DOK 4)
12. Differentiate between the five common models of interrogation (DOK 3)
13. Analyze, evaluate and draw conclusions about a simulated crime scene(s) (DOK 3 and DOK 4)

Core Activities and Corresponding Instructional Methods:

Due to ongoing current events, cases, technology, and topics in the course, flexibility is needed by the instructor in the presentation of materials and content of this course.

1. Students will take notes via PowerPoint presentation or Smart Notebook software and use graphic organizers and concept maps to organize major concepts of the content being presented. Students establish connections from introductory material to being introduced to new concepts on evidence.
2. Students will provide a written response to daily at the bell prompted discussion questions. For example: "What is the difference between physical and testimonial evidence?" "What type of evidence has more probative value in an investigation and why?"
3. Students will use a graphic organizer to outline key concepts of significant court cases from the readings in Forensic Science & Criminalistics by Gaensslen, Harris, & Lee: chapter 2 to evaluate examples of rulings determining the admissibility of evidence in the courtroom. In doing so, students will gain a deeper understanding of the impact of advancements in science and technology and how they impact society and pending court cases.
4. Students will participate in a round table group discussion to evaluate comprehension of evidence admissibility using the "Nature of Evidence Reading" and associated discussion questions.

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DELAWARE VALLEY SCHOOL DISTRICT

5. Students will work as collaborative pairs in an observation and memory activity for interpretation of an eye witness account. By observing a mock crime scene scenario/video/or slide show presenting an event, students will work as an instigative team working on their observation and communication skills during this collaborative activity.
6. Students will participate in the construction of police sketch artist composite sketch of a suspect using information from an eye witness using independent computer skills to work with the FACES software computer program to generate the suspect sketch.
7. Students will jigsaw an ethics activity regarding ethical practices of law enforcement officials and officers interviewing/ interrogating witnesses and suspects.
8. Students will read case studies to answer content questions, write summary paragraphs, or create materials for debate, discussion, or presentation. Examples of case studies include: "The Innocence Project," "Ronald Cotton Case", and "The Detroit 5."
9. Students will complete note sheets, worksheets, vocabulary evaluations, and content evaluations to demonstrate understanding of the concepts within the unit.

Assessments:

Diagnostic:

- Informal Questioning
- Pre-unit questionnaire
- Teacher Observation
- Class Discussion
- At-the-Bell Questions
-

Formative:

- Informal Questioning
- Teacher Observation
- Class Discussion
- At-the-Bell Questions
- Assorted worksheets
- Teacher-generated assignments
- Laboratory Exercises
- Vocabulary practice
- Diagrams if applicable
- Study guides
- Video guides
- Current case logs/journals
- Structured class discussion
- Activities and Review Games
- Guided Reading Worksheets
- Mock Crime Scene Evaluation (generated by teacher)

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DELAWARE VALLEY SCHOOL DISTRICT

Summative:

- The Innocence Project Evidence Analysis project
- Evidence and the Legal System: Testimonial Evidence Unit Quizzes
- Evidence and the Legal System: Testimonial Evidence Unit Common Assessment

Extensions:

1. Case Studies chosen by teacher
2. Observation/Eye-Witness Activities generated by teacher
3. Research Crime Trends in Your Community (p.28)

Correctives:

1. Student generated flashcards
2. Concept Mapping
3. Introduction outline of key terms
4. Teacher generated worksheets/diagrams
5. Review questions at end of corresponding chapter

Materials and Resources:

Main Text Forensic Science and Criminalistics, Gaensslen, Harris, & Lee, 2008

1. Laptop Computers/Chrome Books/IPADS
2. Teacher Generated Worksheets
3. FACES Software
4. Mock Crime Scene supplies
5. Nature of Evidence Article
6. Ted Talks
7. Assorted Forensics Videos (FBI Files, Cold Case, Investigation Discovery, Forensic Files)

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DELAWARE VALLEY SCHOOL DISTRICT

Curriculum Plan

Unit 3: Physical Evidence

Time Range in Days: 15

Standard(s): PA Academic Standards, PACS Reading and Writing for Science and Technology, and Science as Inquiry

Standards Addressed:

PACS: CC.3.5.11-12.B.; CC.3.5.11-12.E.; CC.3.6.11-12.C.; CC.3.6.11-12.D.; CC.3.6.11-12.E.; CC.3.6.11-12.G.

Science as Inquiry: 3.1.12.A2, 3.1.12.A9, 4.5.12.F, 4.3.12.C, 4.1.12.F

PA Academic Standards: 3.1.12.A5.; 3.1.12.A8.; 3.1.12.A9.; 3.4.12.A2; 3.4.12.A3; 3.4.12.B1.

Biology Keystone Anchors:

BIO.A.4.2.1, BIO.A.4.1.1, BIO.A.4.1.2, BIO.A.1.2.2

Anchor(s): S11.A.1; S11.B.1; S11.A.1.2; S11.A.1.3; S11.A.2.1; S11.A.3.1; S11.A.3.2; S11.A.3.3; S11.B.3.2

Big Idea # 1: Observed patterns of forms and events guide organization and classification and prompt questions about relationships and the factors that influence them.

Essential Questions:

- What can interaction with evidence and the scene reveal about the crime?
- How can patterns be used to associate evidence with a suspect, victim, or scene?

Concepts:

- Students will follow the steps involved in preserving, packaging, and processing evidence
- Students will recognize the importance of Standard/Reference samples
- Students will understand why following protocol is important to the admissibility of evidence
- Students will work together as a collaborative team to navigate the steps in crime scene processing and analysis

Competencies:

- Students will be able to analyze written scenario for proper protocol
- Students will need to identify and explain the importance of exemplar samples

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DELAWARE VALLEY SCHOOL DISTRICT

- Students will evaluate material from a mock crime using appropriate skills and knowledge of preserving, packaging, and processing of evidence
- Students will be able to exclude or link a suspect through proper evidence comparison methods

Big Idea # 2: Cause and Effect: Causal relationships and their mechanisms can be tested and used to predict and explain events.

Essential Questions:

- How can changes in evidence give direct correlation to the events that took place?
- Are changes in matter (i.e. evidence) a direct result of the events that took place?

Concepts:

- Students will understand how to calculate density
- Students will practice how to evaluate refractive index
- Students will identify and categorize the characteristics of hair, fiber, glass, soil, paint, and sand evidence

Competencies:

- Students will analyze and evaluate the difference between different types of trace evidence
- Students will distinguish between animal and human hair as well as between synthetic and natural fibers
- Students will use deductive and inductive reasoning to analyze trace evidence from several crime scenes in order to determine the source of the evidence
- Students will differentiate between individual and class characteristics for all types of trace evidence analyzed

Overview: Forensic science is a multiple disciplinary science course that focuses on the connection and application of science to the criminal justice and legal system. Current events relating to scientific issues and the events that occur within the criminal justice system will be highlighted. Current events/cases/investigations will be incorporated freely throughout each unit. Students will connect prior knowledge of evidence and the legal system to the proper identification, collection, and classification of evidence. Students will use inductive and deductive reasoning skills to analyze different types of trace evidence collected from a crime scene.

Goals:

Students will be able to understand the importance of following proper protocol when it comes to the handling and documentation of physical evidence both in and out of the laboratory. During this unit students will begin to recognize the importance of identifying and collecting fragile evidence first to prioritize their search due to the fragile nature of biological pieces of evidence such as saliva, semen, blood, and DNA. Additionally, students will practice how to

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DELAWARE VALLEY SCHOOL DISTRICT

properly document evidence at the scene as well as maintaining chain of custody for admissibility purposes. Students will also be able to understand the large role of trace evidence (i.e. sand, soil, glass, paint, hair, and fibers) in an investigation and the techniques used for analyzing trace evidence.

Objectives:

(Students will be able to)

1. Identify the type of professionals who are present at a crime scene (DOK 1)
2. Describe how evidence from a crime scene is analyzed (DOK 2)
3. Demonstrate proper techniques for collection and packaging of physical evidence (DOK 2)
4. Differentiate between class and individual characteristics of evidence (DOK 3)
5. Recognize examples of trace evidence (DOK 1)
6. Distinguish between direct and circumstantial evidence (DOK 2)
7. Classify and organize evidence to help infer what they believed to have happened in a mock crime scenario (DOK 2)
8. Evaluate and draw conclusions about a simulated crime scene(s) by applying concepts on collection and preservation of evidence learned in the classroom (DOK 3 and DOK 4)
9. Recall the unique physical properties of each type of trace evidence discussed and used during investigations (DOK 1)
10. Formulate a hypothesis and infer what they believe the source of the evidence to be (DOK 2 and DOK 3)
11. Analyze, evaluate and draw conclusions about various types of evidence (hair, sand, soil, fibers, and glass) (DOK 3 and DOK 4)

Core Activities and Corresponding Instructional Methods:

Due to ongoing current events, cases, technology, and topics in the course, flexibility is needed by the instructor in the presentation of materials and content of this course.

1. Students will take notes via PowerPoint presentation or Smart Notebook software and use graphic organizers and concept maps to organize major concepts of the content being presented. Students will establish connections from previous unit on testimonial evidence while being introduced to new concepts on the identification, collection, and analysis of physical evidence.
2. Students will provide a written response to daily at the bell prompted discussion questions. For example: "Why is proper collection, packaging, and preservation of evidence essential to analysis and evaluation?" or "How can trace amounts of evidence play a vital role in linking a person with another person, place or object?"
3. Students will participate in and complete an activity identifying pieces of evidence to classify them as having either class or individualized characteristics of evidence. This activity continues to promote the development of communication and critical thinking skills needed throughout the duration of this course.
4. Students will use a graphic organizer to outline key concepts of significant court cases from the readings in Forensic Science & Criminalistics by Gaensslen, Harris, & Lee:

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DELAWARE VALLEY SCHOOL DISTRICT

chapters 3 and 13 to evaluate examples of supreme court rulings determining the admissibility of evidence in the courtroom. In doing so, students will gain a deeper understanding of the impact of advancements in science and technology and how they impact society and pending court cases. *For example: Frye vs United States and Daubert vs Dow.*

5. Students will work at designated lab stations with partners to complete a lab analysis activity to identify different morphological characteristics of several different types of hair samples. Hair samples include: Animal, Human Hair, Human facial, underarm, and pubic hair. Students will then analyze unknown samples collected from a crime scene in a “who dunnit” activity. Example activity: “Who assaulted Mrs. Winston.” These activities are used to simulate the cooperative learning environment of the different sections of a working crime lab. This will also serve as structured practice for students to use observational, communication, and reasoning skills.
6. Students will work at designated lab stations with partners to complete a fiber analysis activity to identify different physical and chemical characteristics of several different types of fiber samples. Fiber samples include: plant, animal, stem, mineral, and synthetic fibers. Students will then analyze unknown samples collected from a crime scene for comparison and identification activity. These activities are used to simulate the cooperative learning environment of the different sections of a working crime lab. This will also serve as structured practice for students to use observational, communication, and reasoning skills.
7. Students will work at lab stations with partners to complete a lab analysis of other trace evidence materials such as soil, glass, paint, and sand. In this activity, students will work to identify different components of evidence like calculating density and refractive index of the glass samples. These activities are used to simulate the cooperative learning environment of the different sections of a working crime lab. This will also serve as structured practice for students to use observational, communication, and reasoning skills.
8. Students will participate in a round table group discussion, case summary, and deep analysis of teacher selected case studies to evaluate the use of forensic collection and analysis of physical evidence using prompted discussion questions or reading analysis questions. Examples of case studies include: “Green Beret Murders” aka Richard McDonald Case, “The Nebraska Boy Snatcher” aka John Joubert case and “The Atlanta Child Murders” aka Wayne Williams case.
9. Students will complete note sheets, worksheets, vocabulary evaluations, and content evaluations to demonstrate understanding of the concepts within the unit.

Assessments:

Diagnostic:

- Informal Questioning
- Pre-unit questionnaire
- Teacher Observation

*NOTE: Example laboratory demonstrations/experiments and/or activities that have been highlighted in the core activities or assessments can be found in public file “BakerL” in a file titled “Resources – Forensic Science Curricula.”

DELAWARE VALLEY SCHOOL DISTRICT

- Class Discussion
- At-the-Bell Questions

Formative:

- Informal Questioning
- Teacher Observation
- Class Discussion
- At-the-Bell Questions
- Assorted worksheets
- Teacher-generated assignments
- Laboratory Exercises
- Vocabulary practice
- Diagrams if applicable
- Study guides
- Video guides
- Current case logs/journals
- Structured class discussion
- Activities and Review Games
- Guided Reading Worksheets
- Mock Crime Scene Scenarios (generated by teacher)

Summative:

- The Atlanta Child Murders Analysis project
- Evidence and the Legal System: Evidence Collection and Processing Unit Quizzes
- Evidence and the Legal System: Evidence Collection and Processing Unit Common Assessment

Extensions:

1. Case Studies (Soil, Hair, Fibers) chosen/generated by teacher
2. Fiber Challenge
3. Shattered Glass Worksheet
4. Hair and Fiber Worksheet

Correctives:

1. Student generated flashcards
2. Concept Mapping
3. Outline of key terms
4. Teacher generated worksheets/diagrams
5. Review questions at end of corresponding chapter

*NOTE: Example laboratory demonstrations/experiments and/or activities that have been highlighted in the core activities or assessments can be found in public file "BakerL" in a file titled "Resources – Forensic Science Curricula."

DELAWARE VALLEY SCHOOL DISTRICT

Materials and Resources:

Main Text Forensic Science and Criminalistics, Gaensslen, Harris, & Lee, 2008

1. Laptop Computers/Chrome Books/IPADS
2. Teacher Generated Worksheets
3. FACES Software
4. Mock Crime Scene supplies
5. Nature of Evidence Article
6. Ted Talks
7. Assorted Forensics Videos (FBI Files, Cold Case, Investigation Discovery, Forensic Files)

*NOTE: Example laboratory demonstrations/experiments and/or activities that have been highlighted in the core activities or assessments can be found in public file "BakerL" in a file titled "Resources – Forensic Science Curricula."

DELAWARE VALLEY SCHOOL DISTRICT

Curriculum Plan

Unit 4: Forensic Pathology

Time Range in Days: 15

Standard(s): PA Academic Standards, PACS Reading and Writing for Science and Technology, and Science as Inquiry

Standards Addressed:

PACS: CC.3.5.11-12.B.; CC.3.5.11-12.E.; CC.3.6.11-12.C.; CC.3.6.11-12.D.; CC.3.6.11-12.E.; CC.3.6.11-12.G.

Science as Inquiry: 3.1.12.A2, 3.1.12.A9, 4.5.12.F, 4.3.12.C, 4.1.12.F

PA Academic Standards: 3.1.12.A5.; 3.1.12.A8.; 3.1.12.A9.; 3.4.12.A2; 3.4.12.A3; 3.4.12.B1.

Biology Keystone Anchors:

BIO.A.4.2.1, BIO.A.4.1.1, BIO.A.4.1.2, BIO.A.1.2.2

Anchor(s): S11.A.1; S11.B.1; S11.A.1.2; S11.A.1.3; S11.A.2.1; S11.A.3.1; S11.A.3.2; S11.A.3.3; S11.B.3.2

Big Idea # 1: The way in which an object or living thing is shaped determines many of its properties and functions

Essential Questions:

- How is anatomical structure related to function?
- How do changes in structure affect body systems?

Concepts:

- Students will define and identify anatomical and directional terms
- Students will describe specific systems in the body and how they function properly
- Students will understand how these terms can connect to a forensic science investigation and autopsy

Competencies:

- Students will use, label, and define anatomical terminology and planes
- Students will identify the body systems and the organs that are involved
- Students will apply anatomical terminology to describe victim and injuries
- Students will understand anatomical terminology when reading an autopsy report

*NOTE: Example laboratory demonstrations/experiments and/or activities that have been highlighted in the core activities or assessments can be found in public file "BakerL" in a file titled "Resources – Forensic Science Curricula."

DELAWARE VALLEY SCHOOL DISTRICT

Big Idea # 2: Medical examiners and coroners use reasoning and argumentation to make a justified claim about the victim.

Essential Questions:

- What is the role of a medical examiner?
- What is the role of a coroner?
- What type of claims can they make after analyzing data from the victim?

Concepts:

- Students will define medical examiner and coroner
- Students will compare and contrast the role of a medical examiner versus coroner
- Students will understand the role of a medical examiner or coroner and the information that can be found on the victim

Competencies:

- Students will explain the role of a medical examiner
- Students will explain the role of a coroner
- Students will identify differences between a medical examiner and coroner
- Students will understand the role of each and how they can supply information that can benefit a criminal investigation

Big Idea # 3: Observed patterns of forms and events guide organization and classification and prompt questions about relationships and the factors that influence them.

Essential Questions:

- How are patterns found and analyzed on victim/through criminal investigations used to predict the outcome?
- How are these patterns documented in an autopsy report?

Concepts:

- Students will examine autopsy reports and understand the information that is presented and how it can be used in the criminal investigation
- Students will identify the types manners of death
- Students will explain how body systems can provide evidence for the criminal investigation

Competencies:

- Students will discuss how laboratory tests are used to determine the contributing factors that led to someone's death.
- Students will describe the organization and structure of the autopsy report.

*NOTE: Example laboratory demonstrations/experiments and/or activities that have been highlighted in the core activities or assessments can be found in public file "BakerL" in a file titled "Resources – Forensic Science Curricula."

DELAWARE VALLEY SCHOOL DISTRICT

- Students will distinguish between four manners of death: natural, accidental, suicidal, and homicidal
- Students will distinguish between cause, manner, and mechanisms of death
- Students will explain the development of rigor, algor, and livor mortis following death
- Students will identify how specific body systems can help determine time of death

Overview: Forensic science is a multiple disciplinary science course that focuses on the connection and application of science to the criminal justice and legal system. Current events relating to scientific issues and the events that occur within the criminal justice system will be highlighted. Students will be introduced to the history of medical examiners and coroners and their roles in a forensics investigation. Students will learn anatomical terminology and body systems and understand the evidence that they can present. In addition, be able to evaluate this evidence to determine cause, manner, mechanism, and time of death of the victim in the criminal investigation.

Goals:

For students to better understand the role of a medical examiner and a coroner and their value to a criminal investigation and an autopsy report. Students should be able to interrupt autopsy reports or information from the medical examiners and coroners and be able to estimate time, cause, manner, and mechanism of death.

Objectives:

(Students will be able to)

1. Identify and label anatomical terminology (DOK 1)
2. Apply anatomical terms to victim in criminal investigation (DOK 4)
3. Identify specific body systems and differentiate the evidence each provides (DOK 1, DOK 3)
4. State the role of a medical examiner and/or coroner in a forensic investigation (DOK 1)
5. Analyze an autopsy report (DOK 4)
6. Identify manner, cause, time, and mechanism of death (DOK 1)
7. Differentiate between manner, cause, and mechanism of death (DOK 3)
8. Summarize evidence in the autopsy report to identify cause, manner, mechanism, and time of death (DOK 2)
9. Differentiate the four manners of death (DOK 3)
10. Identify the stages of decomposition(DOK 1)
11. Estimate time of death using body systems (DOK 2)
12. Summarize how an autopsy is completed (DOK 2)

*NOTE: Example laboratory demonstrations/experiments and/or activities that have been highlighted in the core activities or assessments can be found in public file "BakerL" in a file titled "Resources – Forensic Science Curricula."

DELAWARE VALLEY SCHOOL DISTRICT

Core Activities and Corresponding Instructional Methods:

Due to ongoing current events, cases, technology, and topics in the course, flexibility is needed by the instructor in the presentation of materials and content of this course.

1. Students will take notes via PowerPoint presentation or Smart Notebook software and use graphic organizers and concept maps to organize major concepts of the content being presented. Students establish connections from introductory material to being introduced to new concepts on evidence.
2. Students will provide a written response to daily at the bell prompted discussion questions. For example: “What is the difference a medical examiner and coroner?” “What type of evidence can body systems supply to help determine time of death?”
3. Students will use a graphic organizer to outline key concepts of significant court cases from the readings in Forensic Science & Criminalistics by Gaensslen, Harris, & Lee: chapter 2 and 3 to understand the role of a medical examiner and autopsy report.
4. Students will label and color anatomy terms and planes to practice to be able to apply terminology to forensic reports.
5. Students will research the qualifications to become a medical examiner/ coroner in different states, create a summary, and participate in discussion presenting their findings.
6. Students will evaluate manner, cause, time, and mechanism of death in specific scenarios to determine each. Teacher will supply practice worksheets with varying scenarios.
7. Students will complete “celebrity autopsy” activity. Teacher will supply specific celebrities that students will research and determine time, cause, means, manner, and mechanism of death from research and autopsy reports.
8. Students will read autopsy reports and summarize manner, cause, time, and mechanism of death.
9. Students will complete an online virtual autopsy. They will explain how an autopsy is completed on worksheet supplied by teacher.
10. Students will read case studies to answer content questions, write summary paragraphs, or create materials for debate, discussion, or presentation. Example would be “What exactly do they do during an autopsy” article.
11. Students will complete note sheets, worksheets, vocabulary evaluations, and content evaluations to demonstrate understanding of the concepts within the unit.

Assessments:

Diagnostic:

- Informal Questioning
- Pre-unit questionnaire
- Teacher Observation
- Class Discussion
- At-the-Bell Questions

*NOTE: Example laboratory demonstrations/experiments and/or activities that have been highlighted in the core activities or assessments can be found in public file “BakerL” in a file titled “Resources – Forensic Science Curricula.”

DELAWARE VALLEY SCHOOL DISTRICT

Formative:

- Informal Questioning
- Teacher Observation
- Class Discussion
- At-the-Bell Questions
- Assorted worksheets
- Teacher-generated assignments
- Laboratory Exercises
- Vocabulary practice
- Diagrams if applicable
- Study guides
- Video guides
- Current case logs/journals
- Structured class discussion
- Activities and Review Games
- Guided Reading Worksheets

Summative:

- Medical Examiner and Coroner Qualification Summary
- Forensic Pathology: Anatomy Quiz
- Forensic Pathology: Qualifications of Death Quiz
- Forensic Pathology: Autopsy Quiz
- Forensic Pathology Unit Common Assessment

Extensions:

- Case Studies chosen by teacher
- Autopsy files video

Correctives:

1. Student generated flashcards
2. Concept Mapping
3. Introduction outline of key terms
4. Teacher generated worksheets/diagrams
5. Review questions at end of corresponding chapter

Materials and Resources:

Main Text Forensic Science and Criminalistics, Gaensslen, Harris, & Lee, 2008

1. Laptop Computers/Chrome Books/IPADS
2. Teacher Generated Worksheets
3. Ted Talks
4. Assorted Forensics Videos (FBI Files, Cold Case, Investigation Discovery, Forensic Files)

*NOTE: Example laboratory demonstrations/experiments and/or activities that have been highlighted in the core activities or assessments can be found in public file "BakerL" in a file titled "Resources – Forensic Science Curricula."

Curriculum Plan

Unit 5: Forensic Biology

Time Range in Days: 15

Standard(s): PA Academic Standards, PACS Reading and Writing for Science and Technology, and Science as Inquiry

Standards Addressed:

PACS: CC.3.5.11-12.B.; CC.3.5.11-12.E.; CC.3.6.11-12.C.; CC.3.6.11-12.D.; CC.3.6.11-12.E.; CC.3.6.11-12.G.

Science as Inquiry: 3.1.12.A2, 3.1.12.A9, 4.5.12.F, 4.3.12.C, 4.1.12.F

PA Academic Standards: 3.1.12.A5.; 3.1.12.A8.; 3.1.12.A9.; 3.4.12.A2; 3.4.12.A3; 3.4.12.B1.

Biology Keystone Anchors:

BIO.A.4.2.1, BIO.A.1.2.2

Anchor(s): S11.A.1; S11.B.1; S11.A.1.2; S11.A.1.3; S11.A.2.1; S11.A.3.1; S11.A.3.2; S11.A.3.3; S11.B.3.2

Big Idea # 1: The way in which an object or living thing is shaped determines many of its properties and functions

Essential Questions:

- How is anatomical structure related to function?

Concepts:

- Students will identify and locate bones in the body
- Students will understand how these bones can connect to a forensic science investigation

Competencies:

- Students will label bones in diagrams
- Students will identify the bones in pictures and practical exams
- Students will apply anatomical terminology to describe victim

*NOTE: Example laboratory demonstrations/experiments and/or activities that have been highlighted in the core activities or assessments can be found in public file "BakerL" in a file titled "Resources – Forensic Science Curricula."

DELAWARE VALLEY SCHOOL DISTRICT

Big Idea # 2: The way in which a living thing is shaped determines many of its properties and functions.

Essential Questions:

- How is the structure of bones related to the height, race, sex, or age of the victim/person?
- How does forensic odontology help determine age of the victim?

Concepts:

- Students will identify the long bones, cranium, pelvis and structures that can be used to help determine age, gender, race, and height of victims

Competencies:

- Students will identify the differences between human and animal bones
- Students will identify the long bones and evaluate height and age
- Students will identify the pelvis and evaluate gender and age
- Students will identify the cranium and evaluate structures that determine age and gender
- Students will evaluate teeth and mouth structure of victim to determine age

Big Idea # 3: Observed patterns of forms and events guide organization and classification and prompt questions about relationships and the factors that influence them.

Essential Questions:

- How are patterns in forensic entomology used to predict time of death?

Concepts:

- Students will study life cycles of insects to help determine time of death of victim.

Competencies:

- Students will evaluate how the insects present on the body can help determine time of death

Overview: Forensic science is a multiple disciplinary science course that focuses on the connection and application of science to the criminal justice and legal system. Current events relating to scientific issues and the events that occur within the criminal justice system will be highlighted. Students will learn human bone structure and how to evaluate specific bones to determine information about the victim. In addition, they will also be able to evaluate other evidence on the body/victim to determine time of death.

*NOTE: Example laboratory demonstrations/experiments and/or activities that have been highlighted in the core activities or assessments can be found in public file "BakerL" in a file titled "Resources – Forensic Science Curricula."

DELAWARE VALLEY SCHOOL DISTRICT

Goals:

For students to differentiate between bones and determine if it is human or animal. Then, evaluate the bones to determine age, height, gender, and ethnicity of the victim. In addition, students should be able to recall stages of an insect's life cycle to determine time of death of the victim.

Objectives:

(Students will be able to)

1. Identify and label human bones (DOK 1)
2. Apply anatomical terms to victim in criminal investigation (DOK 4)
3. Identify long bones and calculate height (DOK 1)
4. Analyze sutures on long bones to determine age (DOK 4)
5. Identify the pelvis and classify gender (DOK 1, DOK 2)
6. Identify the cranium and sutures (DOK 1)
7. Summarize age of victim from frontal and occipital sutures on the cranium (DOK 2)
8. Compare male and female characteristics of the pelvis and skull (DOK 3)
9. Estimate age, height, gender, and race from bones supplied of unknown victim (DOK 2)
10. Estimate age of victim by analyzing teeth structure (DOK 2)
11. Analyze insects on victim to determine time of death (DOK 4)

Core Activities and Corresponding Instructional Methods:

Due to ongoing current events, cases, technology, and topics in the course, flexibility is needed by the instructor in the presentation of materials and content of this course.

1. Students will take notes via PowerPoint presentation or Smart Notebook software and use graphic organizers and concept maps to organize major concepts of the content being presented. Students establish connections from introductory material to being introduced to new concepts on evidence.
2. Students will provide a written response to daily at the bell prompted discussion questions. For example: "What are the differences between a male and female pelvis?" "What type of evidence can specific insects supply when present on the body?"
3. Students will use a graphic organizer to outline key concepts of significant court cases from the readings in Forensic Science & Criminalistics by Gaensslen, Harris, & Lee: chapter 6 to understand the how forensic anthropology is useful in a forensic investigation.
4. Students will label and color bones in the human body on teacher generated worksheets.
5. Students will complete "No bones about it" activity to practice calculating heights of unknown victim's long bones. Students will construct skeletal remains, measure the long bones, and determine each unknown victim based on data calculated through the lab.

*NOTE: Example laboratory demonstrations/experiments and/or activities that have been highlighted in the core activities or assessments can be found in public file "BakerL" in a file titled "Resources – Forensic Science Curricula."

DELAWARE VALLEY SCHOOL DISTRICT

6. Students will evaluate diagrams of bones to determine age, height, race, and gender when applicable. Diagrams should vary in age, gender, and race to give students various practice.
7. Students will analyze bone structures including the femur, humerus, cranium, and a variation of different pelvis' and determine age, height, race, and gender when applicable.
8. Students will analyze teeth and/or dental impressions in diagrams, pictures, and bone structure to determine age.
9. Students will label structures and bones that are helpful to determine aspects about victim on teacher generated worksheet.
10. Students will evaluate victim condition and insects in diagrams and scenarios to determine time of death.
11. Students will read case studies to answer content questions, write summary paragraphs, or create materials for debate, discussion, or presentation. Example includes "John Wayne Gacy: The Killer Clown".
12. Students will complete note sheets, worksheets, vocabulary evaluations, and content evaluations to demonstrate understanding of the concepts within the unit.

Assessments:

Diagnostic:

- Informal Questioning
- Pre-unit questionnaire
- Teacher Observation
- Class Discussion
- At-the-Bell Questions

Formative:

- Informal Questioning
- Teacher Observation
- Class Discussion
- At-the-Bell Questions
- Assorted worksheets
- Teacher-generated assignments
- Laboratory Exercises
- Vocabulary practice
- Diagrams if applicable
- Study guides
- Video guides
- Current case logs/journals
- Structured class discussion
- Activities and Review Games

*NOTE: Example laboratory demonstrations/experiments and/or activities that have been highlighted in the core activities or assessments can be found in public file "BakerL" in a file titled "Resources – Forensic Science Curricula."

DELAWARE VALLEY SCHOOL DISTRICT

- Guided Reading Worksheets

Summative:

- Bone Anatomy and Classification Quiz
- Forensic Anthropology Unit Common Assessment and Practical

Extensions:

- Case Studies chosen by teacher
- “The Body Farm” video

Correctives:

1. Student generated flashcards
2. Concept Mapping
3. Introduction outline of key terms
4. Teacher generated worksheets/diagrams
5. Review questions at end of corresponding chapter

Materials and Resources:

Main Text Forensic Science and Criminalistics, Gaensslen, Harris, & Lee, 2008

1. Laptop Computers/Chrome Books/IPADS
2. Variation of Bones for Evaluation and Practical
3. Teacher Generated Worksheets
4. Ted Talks
5. Assorted Forensics Videos (FBI Files, Cold Case, Investigation Discovery, Forensic Files)

*NOTE: Example laboratory demonstrations/experiments and/or activities that have been highlighted in the core activities or assessments can be found in public file “BakerL” in a file titled “Resources – Forensic Science Curricula.”

Curriculum Plan

Unit 6: Crime Scene Analysis and Reconstruction

Time Range in Days: 15

Standard(s): PA Academic Standards, PACS Reading and Writing for Science and Technology, and Science as Inquiry

Standards Addressed:

PACS: CC.3.5.11-12.B.; CC.3.5.11-12.E.; CC.3.6.11-12.C.; CC.3.6.11-12.D.; CC.3.6.11-12.E.; CC.3.6.11-12.G.

Science as Inquiry: 3.1.12.A2, 3.1.12.A9, 4.5.12.F, 4.3.12.C, 4.1.12.F

PA Academic Standards: 3.1.12.A5.; 3.1.12.A8.; 3.1.12.A9.; 3.4.12.A2; 3.4.12.A3; 3.4.12.B1.

Anchor(s): S11.A.1; S11.B.1; S11.A.1.2; S11.A.1.3; S11.A.2.1; S11.A.3.1; S11.A.3.2; S11.A.3.3; S11.B.3.2

Big Idea # 1: Asking questions and defining problems are essential to developing scientific habits of mind.

Essential Questions:

- What kinds of questions do forensic scientists ask when arriving at a crime scene?

Concepts:

- Design/plan investigations appropriate for answering scientific questions or testing hypotheses

Competencies:

- Ask questions and make connections to initial stages of reconstruction in the investigation

Big Idea # 2: Scientists construct mental and conceptual models of phenomena to represent current understandings, aid in developing questions and experiments, and to communicate idea to others.

Essential Questions:

- How do forensic scientists develop and use models to investigate a crime scene correctly?

*NOTE: Example laboratory demonstrations/experiments and/or activities that have been highlighted in the core activities or assessments can be found in public file "BakerL" in a file titled "Resources – Forensic Science Curricula."

DELAWARE VALLEY SCHOOL DISTRICT

Concepts:

- Students will understand the steps involved in preserving, packaging, and processing evidence
- Students will understand protocol is important to the admissibility of evidence
- Students will understand the role of the first officer at the scene
- Students will understand the steps in crime scene processing and analysis
- Students will understand documentation is important in the stages of an investigation

Competencies:

- Students will analyze written scenarios for proper protocol
- Students will evaluate, collect, and process material from a mock scene using appropriate skills and knowledge of preserving, packaging, and processing
- Students will illustrate various methods of documenting a scene
- Students will exclude or link a suspect through proper comparison of evidence

Big Idea # 3: Data must be presented in a form that can reveal any patterns and relationships and that allows results to be communicated to others.

Essential Questions:

- In what ways are pieces of evidence analyzed, interpreted, and communicated within a crime scene investigation?

Concepts:

- Students will understand that evidence must be properly identified, collected, preserved, and analyzed for reconstruction.

Competencies:

- Students will evaluate evidence presented and analyze correctly to gain information on reconstruction of mock crime scene and suspect.

Overview: Forensic science is a multiple disciplinary science course that focuses on the connection and application of science to the criminal justice and legal system. Current events relating to scientific issues and the events that occur within the criminal justice system will be highlighted. Students will apply crime scene investigative skills to a mock crime scene. Students will analyze crime scene, collect evidence, evaluate autopsy reports, and identify the suspect.

Goals:

For students to understand and apply proper crime scene protocol to a mock crime scene. Students should understand how to properly analyze evidence, collect evidence, sketch a scene, document, take photos, fill in logs, and use these skills to determine the suspect of the crime.

*NOTE: Example laboratory demonstrations/experiments and/or activities that have been highlighted in the core activities or assessments can be found in public file "BakerL" in a file titled "Resources – Forensic Science Curricula."

DELAWARE VALLEY SCHOOL DISTRICT

Objectives:

(Students will be able to)

1. Identify proper crime scene protocol (DOK 1)
2. Make observations while processing witness statements, evidence, autopsy reports, and crime scene (DOK 2)
3. Compare the roles of the lead investigator, criminal photographer, sketch artist, and evidence technician in a criminal investigation (DOK 2)
4. Classify the three different types of documentation during a crime scene investigation (DOK 2)
5. Identify how to correctly package and preserve evidence (DOK 1)
6. Recognize that if evidence is not properly collected it will be admissible (DOK 1)
7. Identify the four different sketch patterns (DOK 1)
8. List important details that should be included within a sketch (DOK 1)
9. Identify how to correctly take photos (DOK 1)
10. Distinguish between the different crime scene logs and identify which each is used for (DOK 2, DOK 1)
11. Illustrate how to identify and evaluate evidence (DOK 1)
12. Hypothesize events that occurred in a crime scene investigation (DOK 3)
13. Summarize events that occurred throughout mock crime scene (DOK 2)
14. Draw conclusions based on documentation and analysis of evidence (DOK 3, DOK 4)
15. Apply concepts of crime scene protocol to mock crime scene (DOK 4)

Core Activities and Corresponding Instructional Methods:

Due to ongoing current events, cases, technology, and topics in the course, flexibility is needed by the instructor in the presentation of materials and content of this course.

1. Students will take notes via PowerPoint presentation or Smart Notebook software and use graphic organizers and concept maps to organize major concepts of the content being presented. Students establish connections from introductory material to being introduced to new concepts on evidence.
2. Students will provide a written response to daily at the bell prompted discussion questions. For example: "What are the specific steps that should be taken when arriving at a crime scene?" "What is the chain of custody?"
3. Students will use a graphic organizer to outline key concepts of significant court cases from the readings in Forensic Science & Criminalistics by Gaensslen, Harris, & Lee: chapter 3 to understand how to properly collect evidence and evaluate a crime scene.
4. Students will independently answer analysis questions on proper protocol of a criminal investigation that will be discussed in class.
5. Students will read articles on what not to do during a forensics crime scene investigation to prove the importance of packaging evidence correctly. Examples include "OJ Simpson Case Taught Police What Not To Do During a Crime Scene".
6. Students will evaluate an evidence log, chain of custody log, and photography log to identify the differences and the roles each has in a crime scene investigation.

*NOTE: Example laboratory demonstrations/experiments and/or activities that have been highlighted in the core activities or assessments can be found in public file "BakerL" in a file titled "Resources – Forensic Science Curricula."

DELAWARE VALLEY SCHOOL DISTRICT

7. Students will practice sketching a small crime scene. A practice sketch should be done before final.
8. In groups, students will become a crime scene investigative team. Each student will have a role/job they are responsible for. Students will evaluate a mock crime scene using proper crime scene protocol to determine the events leading up to the crime and finding the suspect.
9. Students will complete note sheets, worksheets, vocabulary evaluations, and content evaluations to demonstrate understanding of the concepts within the unit.

Assessments:

Diagnostic:

- Informal Questioning
- Pre-unit questionnaire
- Teacher Observation
- Class Discussion
- At-the-Bell Questions

Formative:

- Informal Questioning
- Teacher Observation
- Class Discussion
- At-the-Bell Questions
- Assorted worksheets
- Teacher-generated assignments
- Laboratory Exercises
- Vocabulary practice
- Diagrams if applicable
- Study guides
- Video guides
- Current case logs/journals
- Structured class discussion
- Activities and Review Games
- Guided Reading Worksheets

Summative:

- Crime Scene Analysis Quiz
- Mock Crime Scene Final

Extensions:

- Case Studies chosen by teacher
- Proper protocol articles chosen by teacher

*NOTE: Example laboratory demonstrations/experiments and/or activities that have been highlighted in the core activities or assessments can be found in public file "BakerL" in a file titled "Resources – Forensic Science Curricula."

DELAWARE VALLEY SCHOOL DISTRICT

Correctives:

1. Student generated flashcards
2. Concept Mapping
3. Introduction outline of key terms
4. Teacher generated worksheets/diagrams
5. Review questions at end of corresponding chapter

Materials and Resources:

Main Text Forensic Science and Criminalistics, Gaensslen, Harris, & Lee, 2008

1. Laptop Computers/Chrome Books/IPADS
2. Variation of Final Crime Scene Supplies
3. Teacher Generated Worksheets
4. Ted Talks
5. Assorted Forensics Videos (FBI Files, Cold Case, Investigation Discovery, Forensic Files)

*NOTE: Example laboratory demonstrations/experiments and/or activities that have been highlighted in the core activities or assessments can be found in public file "BakerL" in a file titled "Resources – Forensic Science Curricula."

Primary Textbook(s) Used for this Course of Instruction

Name of Textbook: Introduction to Forensic Science & Criminalistics

Textbook ISBN #: 9780072988482

Textbook Publisher & Year of Publication: McGraw-Hill 2007

Curriculum Textbook is utilized in (title of course): Forensic Science A

*NOTE: Example laboratory demonstrations/experiments and/or activities that have been highlighted in the core activities or assessments can be found in public file "BakerL" in a file titled "Resources – Forensic Science Curricula."

DELAWARE VALLEY SCHOOL DISTRICT

Checklist to Complete and Submit with Curriculum:

- _____ A hard copy of the curriculum using The template entitled “Planned Instruction,” available on the district website

- _____ Hard copies of all supplemental resources not available electronically

- _____ The primary textbook form(s)

- _____ The appropriate payment form, in compliance with the maximum curriculum writing hours noted on the first page of this document

- _____ A USB/Flash Drive containing a single file that will print the curriculum in its intended sequence from beginning to end and all supplemental resources that are available in electronic format.

Each principal and/or department chair has a schedule of First and Second Readers/Reviewers. Each Reader/Reviewer must sign & date below.

First Reader/Reviewer Printed Name _____

First Reader/Reviewer Signature _____ **Date** _____

Second Reader/Reviewer Printed Name _____

Second Reader/Reviewer Signature _____ **Date** _____

*NOTE: Example laboratory demonstrations/experiments and/or activities that have been highlighted in the core activities or assessments can be found in public file “BakerL” in a file titled “Resources – Forensic Science Curricula.”