



Course: Forensic Science Grade: 11-12 Designer(s): M. Dawson	Overview of Course (Briefly describe what students should understand and be able to do as a result of engaging in this course): This semester course is a laboratory-based course intended to study the application of forensic science. This is a multidisciplinary course that draws upon topics previously learned in chemistry and biology. This is an inquiry based course that uses scientific methods to solve crimes and other mysteries. In addition to deepening their understanding of scientific concepts, this course will sharpen student’s critical thinking and problem-solving skills. Throughout the course, topics that will be highlighted include, but are not limited to, observation skills, crime scene analysis, hair and fiber analysis, fingerprinting, and forensic anthropology (skeletal analysis).
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Overarching Big Ideas, Enduring Understandings, and Essential Questions
 (These “spiral” throughout the entire curriculum.)

Big Idea (A Big Idea is typically a noun and always transferable within and among content areas.)	Standard(s) Addressed (What Common Core Standard(s) and/or PA Standard(s) addresses this Big Idea?)	Enduring Understanding(s) (SAS refers to Enduring Understandings as “Big Ideas.” EUs are the understandings we want students to carry with them after they graduate. EUs will link Big Ideas together. Consider having only one or two EUs per Big Idea.)	Essential Question(s) (Essential Questions are broad and open ended. Sometimes, EQs can be debated. A student’s answer to an EQ will help teachers determine if he/she truly understands. Consider having only one or two EQs per Enduring Understanding.)
CONNECTIONS	3.2.10.A6	Connections among events or situations can be used to solve problems.	Explain how evidence be used to explain an event, and interpret what that connection means.
OBSERVATIONS	S11.A.3.2	The skill of observation is critical to interpreting a sequence of events.	How are good observational skills imperative when investigating a crime?
PATTERNS	3.3.12.B2 S11.A.1.3 S11.A.3.3	Trends/patterns can be used to explain events.	How might trends/patterns be used to explain a specific event/outcome? Give an example.

Big Ideas, Enduring Understandings, and Essential Questions Per Unit of Study
 (These do NOT “spiral” throughout the entire curriculum, but are specific to each unit.)

Month of Instruction (In what month(s) will you teach this unit?)	Title of Unit	Big Idea(s) (A Big Idea is typically a noun and always transferable within and among content areas.)	Standard(s) Addressed (What Common Core Standard(s) and/or PA Standard(s) addresses this Big Idea?)	Enduring Understanding(s) (SAS refers to Enduring Understandings as “Big Ideas.” EUs are the understandings we want students to carry with them after they graduate. EUs will link Big Ideas together. Consider having only one or two EUs per Big Idea.)	Essential Question(s) (Essential Questions are broad and open ended. Sometimes, EQs can be debated. A student’s answer to an EQ will help teachers determine if he/she truly understands. Consider having only one or two EQs per Enduring Understanding.)	Common Assessment(s)* (What assessments will all teachers of this unit use to determine if students have answered the Essential Questions?)	Common Resource(s)* Used (What resources will all teachers of this unit use to help students understand the Big Ideas?)
Week 1-2	OBSERVATION SKILLS	CONNECTIONS	3.1.10.B6 3.1.10.A9	The way our brains perceive information affects observational skills. Witness observations are key components to a crime investigation.	Why are good observational skills important? How is information processed in the brain? What factors influence observations?	Lesson/Lab 1-7: The Deadly Picnic (A lab in Deductive Reasoning) Chapter Test	
Weeks 3-4	CRIME-SCENE INVESTIGATION AND EVIDENCE COLLECTION	CONNECTIONS OBSERVATIONS	3.1.10.B6 3.1.10.A9	Evidence tells the story of a crime. Many scientists work together to solve crimes. Crime scene reconstruction helps	What types of scientists work in the field of forensic science? How can crime scene reconstruction assist forensic scientists in solving crimes?	Lesson/Lab 1-5: Lesson on Crime Scene Evaluation Activity 2-1: Locard’s Principle Chapter Test	

				to sort out the events surrounding the occurrence of a crime.			
Weeks 5-7	THE STUDY OF HAIR	CONNECTIONS	3.1.10.B1 3.1.10.B4 3.1.10.A1	Forensic investigators rely on their knowledge of hair structure, function and variation when hair is used as evidence.	How can hair be used to prove a suspect innocent or guilty? What characteristics of a hair can be used to identify race and to differentiate between human and animal hair?	Activity 3-1: Trace Evidenc: Hair Lab 3-7: Hairy Cat Capers Chapter Test	Article – Beethoven’s Heavy Metal Ailment
Weeks 7-9	A STUDY OF FIBERS AND TEXTILES	CONNECTIONS PATTERNS	4.4.12.B	Fiber types can be identified by physical and chemical analysis. Weave patterns can be used to identify different textiles.	What methods are used to analyze fibers? How are weave patterns used to differentiate between the types of fibers?	Lesson/Lab 2-7: Picking up the Pieces, A Lab on Fiber Analysis Chapter Test	
Weeks 9-11	FINGERPRINTS	CONNECTIONS PATTERNS	3.1.10.B1 3.1.10.B4 3.1.10.A1	No two fingerprints are the same. Fingerprints have ridge patterns that allow them to be systematically classified. A fingerprint remains unchanged during a person’s lifetime.	How are fingerprints used in criminal investigations? What characteristics are used to differentiate between fingerprints?	Activity 6-4: Creating a 10 Card Patterns Activity: Minutiae Patterns Lab: Flinn Fingerprinting Kit (Activity Stations Lab) Chapter Test	Article – The Disappearing Fingerprints
Weeks 12-14	BLOOD AND BLOOD SPATTER	CONNECTIONS PATTERNS	3.1.10.B1 3.1.10.B4 3.1.10.A1	Blood type is an inherited trait that is a permanent feature of a person’s biological makeup.	What is blood and how is it analyzed by forensic investigators? What information	Flinn Lab – Blood Stains at the Crime Scene Activity 8-3: Blood Spatter Analysis –	Article – The Forensics of Blood Crime 360 – Blood on the Tracks

				Individual blood stains can convey the directionality and impact of the blood when it impacted a surface.	can be inferred based on blood spatter patterns?	Effect of Height on Blood Drops Activity 8-4: Blood Spatter Impact Angle Activity 8-5: Area of Convergence Activity 8-6: Point of Origin Chapter Test	
Week	DEATH: MEANING, MANNER, MECHANISM, CAUSE AND TIME	CONNECTIONS		An autopsy is performed if a death is suspicious or unexplained. A forensic entomologist studies the development of insect larvae in a body to estimate the time of death.	How can an autopsy help to solve a crime? Why is time of death important?	Activity 11-1: Calculating Time of Death Using Rigor Mortis Activity 11-2: Calculating Time of Death Using Algor Mortis Activity 11-4: Estimating Time of Death using Insect, Algor and Livor Mortis Evidence Chapter Test	
Weeks 15-17	FORENSIC ANTHROPOLOGY	CONNECTIONS	3.1.10.B1 3.1.10.B4 3.3.12.A3 3.1.10.A1	There are visible differences between male and female skeletons. Bones contain a record of injury and disease. Bone facial structures differ among races.	How do forensic anthropologists study bones to help reveal what happened to a person before or after death? How are bones analyzed to determine one's age,	Activity 13-2: Bones - Male or Female? Activity 13-1 (part A): Determining the Age of a Skull Activity 13-4: Estimation of Body Size from	

					sex, race, height, and health?	Individual Bones Activity 13-6: Medical Examiner's Finding Activity 13-5: What Bones Tell Us Activity 13-3 The Romanovs and DNA: An Internet Activity Chapter Test	
Week 17-18	HAND-WRITING ANALYSIS	CONNECTIONS PATTERNS		Each person has unique handwriting traits that can be used to identify the author of a document.	What are the distinguishing points of similarity and difference that can be used to identify handwriting samples?	Activity – Handwriting Analysis	

* Some teachers may need to think about the assessments and resources used in order to determine the Big Ideas, Enduring Understandings, and Essential Questions embedded in their courses. At this point in your curriculum mapping, you might want to ignore the “Common Assessments” and “Common Resources Used” columns. However, you may use them if you wish.