

**Middle Township Public Schools
Cape May Court House, NJ 08210
Curriculum Guide**

Discipline: Forensics Grade Level: 11-12

Grade Level Standards		Content/ Cluster	Essential Questions	Time Frame (Days)	Activities and Differentiation	Cross Curricular Connections	Assessment/ Benchmark	Resources
Domain	Standard							
5.1.12 Science Practices	A B C D	Observation Skills	<p>What are observations and how are they used in forensics?</p> <p>What makes a person a good observer and how reliable are eyewitnesses?</p>	5	<p>Start by emptying a bag on the front table for 2 minutes and then have students write down the number of items they can remember.</p> <p>Guided Notes</p> <p>Innocence Project Research</p> <p>Practice observation skills using photographs</p> <p>Lab Activities – p. 15-19</p>	<p>Read and comprehend complex literary and informational texts independently and proficiently</p> <p>Generate a hypothesis, test, and analyze data</p>	<p>Student Responses</p> <p>Exit Cards</p> <p>Quiz- 4 tips to being a good observer</p> <p>Ch. 1 Review p. 13</p> <p>Graded critical thinking question based on a case study</p>	<p>Textbook Bertino, A.J. & Bertino, P.N., (2016) <i>Forensic Science</i>. Boston, MA: Cengage Learning</p> <p>Online photographs provided by Cengage and questions on p. 15</p>

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5.1.12 Science Practices	A B C D	Evidence Collection	<p>What are the different types of evidence, how are they collected and analyzed?</p> <p>What are the seven steps of a crime scene investigation?</p> <p>How are crime scene maps created and used?</p>	6	<p>Guided Notes</p> <p>Lab Activities</p> <p>Graphic Organizer – Direct and Indirect Evidence</p> <p>Evidence Collection Practical</p> <p>Creation of Crime Scene Maps</p> <p>Case Studies & Analysis</p>	<p>Read and comprehend complex literary and informational texts independently and proficiently</p> <p>Generate a hypothesis, test, and analyze data</p> <p>Follow precisely a complex multistep procedure, taking measurements, or performing technical tasks; analyze specific results based on explanation</p>	<p>Student Responses</p> <p>Exit Cards</p> <p>Unit Test – Observation Skills and Evidence Collection</p>	<p>Textbook Bertino, A.J. & Bertino, P.N., (2016) <i>Forensic Science</i>. Boston, MA: Cengage Learning</p> <p>Theodolite Apps for crime scene sketches</p>

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5.1.12 Science Practices	A B C D	Hair Analysis	What are the parts of a hair and how can it be used in a forensics investigation?	4	Guided Notes Lab Activities – Microscope Work Hair Practical Case Studies & Analysis Hair Testimony Essay and Performance p. 76	Read and comprehend complex literary and informational texts independently and proficiently Generate a hypothesis, test, and analyze data Follow precisely a complex multistep procedure, taking measurements, or performing technical tasks; analyze specific	Student Responses Exit Cards Graded Lab Activity Quiz Grade – Lab Practical Graded Essay	Textbook Bertino, A.J. & Bertino, P.N., (2016) Forensic Science. Boston, MA: Cengage Learning Microscopes Hair Analysis Kit

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						results based on explanations in the text		
5.1.12 Science Practices	A B C D	Fibers and Textiles	What are the common weave patterns in textile samples and how can they be analyzed?	8	Guided Notes Lab Activities – Microscope Work Practical Case Studies & Analysis Create Weave Patterns Questions Teacher WB p. 89	Read and comprehend complex literary and informational texts independently and proficiently Generate a hypothesis, text, and analyze data Follow precisely a complex multistep procedure, taking measurements, or performing technical tasks;	Student Responses Exit Cards Graded Lab Activity Quiz Grade – Lab Practical Unit Test – Hair Analysis & Fibers/ Textiles Questions p. 93	Textbook Bertino, A.J. & Bertino, P.N., (2016) Forensic Science. Boston, MA: Cengage Learning Microscopes Fiber/ Textile Labs

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						analyze specific results based on explanations in the text.		
5.1.12 Science Practices	A B C D	Forensic Botany	How can botanical evidence help solve crimes by linking people or objects, postmortem intervals, and aiding in locations? Why should forensic botanists consult with local individuals?	8	Guided Notes Case Studies & Analysis Pollen & Plant Analysis Isolation of Pollen from Honey	Generate a hypothesis, test, and analyze data Follow precisely a complex multistep procedure, taking measurements, or performing technical tasks; analyze specific results based on explanations in the text	Student Responses Exit Cards Graded Lab Activity Forensic Botany Exam	Textbook Bertino, A.J. & Bertino, P.N., (2016) Forensic Science. Boston, MA: Cengage Learning Flowering Plants
5.1.12 Science Practices	A B C D	Fingerprints	How has fingerprinting evolved with time?	5	Guided Notes Case Studies & Analysis	Generate a hypothesis, test, and analyze data	Student Responses Exit Cards	Textbook Bertino, A.J. & Bertino, P.N., (2016) Forensic

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			How are fingerprints taken, recorded, and presented in cases?		Fingerprint Cards Latent Print Lifts p. 172 Review Questions	Follow precisely a complex multistep procedure, taking measurements, or performing technical tasks; analyze specific results based on explanations in the text	Graded Lab Activity Fingerprint Exam	Science. Boston, MA: Cengage Learning Fingerprint Kit
5.1.12 Science Practices	A B C D	DNA Profiling	How is DNA collected, processed and used in criminal investigations? What is mtDNA and how can it be used to profile a person? What is the	10	Guided Notes Case Studies & Analysis DNA extraction lab Gel Electrophoresis Lab STR Profiling Lab	Follow precisely a complex multistep procedure, taking measurements, or performing technical tasks; analyze specific results based on explanations in the text.	Student Responses Exit Cards Graded Lab Activities Lab Quiz DNA Exam	Textbook Bertino, A.J. & Bertino, P.N., (2016) Forensic Science. Boston, MA: Cengage Learning

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			difference between an intron and an exon?		p. 220			
5.1.12 Science Practices	A B C D	Blood and Blood Splatter	<p>What is the forensic significance of the types of blood cells?</p> <p>How do you screen for blood?</p> <p>How are different types of blood-splatter patterns formed?</p>	10	<p>Guided Notes</p> <p>Case Studies & Analysis</p> <p>Questions p. 247</p> <p>Blood Presence Lab Test</p> <p>Blood Splatter Analysis Effect of Height on Blood Drops p. 257</p> <p>Crime Scene Investigation p. 279</p>	<p>Generate a hypothesis, test, and analyze data</p> <p>Follow precisely a complex multistep procedure, taking measurements, or performing technical tasks; analyze specific results based on explanations in the text</p>	<p>Student Responses</p> <p>Exit Cards</p> <p>Graded Lab Activities</p> <p>Lab Quiz</p> <p>Blood Exam</p>	<p>Textbook Bertino, A.J. & Bertino, P.N., (2016) Forensic Science. Boston, MA: Cengage Learning</p>

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5.1.12 Science Practices	A B C D	Forensic Toxicology	<p>What are drugs, poisons and toxins?</p> <p>What factors affect drug toxicology and how are they analyzed?</p> <p>What are the signs and symptoms of overdose with a specific substance or combination of substances</p>	10	<p>Guided Notes</p> <p>Case Studies & Analysis</p> <p>p. 297 questions</p> <p>Drug Analysis Lab (Urine) & Drug Spot Test</p> <p>Class Debate: Should Marijuana Be Legalized?</p>	<p>Read and comprehend complex literary and informational texts independently and proficiently</p> <p>Generate a hypothesis, test, and analyze data</p> <p>Follow precisely a complex multistep procedure, taking measurements, or performing technical tasks; analyze specific results based on explanations</p>	<p>Student Responses</p> <p>Exit Cards</p> <p>Graded Lab Activities</p> <p>Lab Quiz</p> <p>Participation in Class</p> <p>Debate</p>	<p>Textbook Bertino, A.J. & Bertino, P.N., (2016) Forensic Science. Boston, MA: Cengage Learning.</p> <p>Urine Analysis Lab</p> <p>Web Sources related to legalizing marijuana</p>

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5.1.12 Science Practices	A B C D	Handwriting, Forgery, and Counterfeiting	<p>How is a sample of handwriting evidence compared to an exemplar using both qualitative and quantitative characteristics and its limitations?</p> <p>How are fraudulent documents created and how are they prevented?</p> <p>How do older paper currencies compare with new</p>	8	<p>Guided Notes</p> <p>Case Studies & Analysis</p> <p>Handwriting Analysis Lab Activity</p> <p>Analysis of Ransom note and report to jury activity</p> <p>Lab Activity: Is it authentic or counterfeit?</p>	<p>Follow precisely a complex multistep, procedure, taking measurements, or performing technical tasks; Analyze specific results based on explanations in the text</p> <p>Read and comprehend complex literary and informational texts independently and proficiently</p> <p>Generate a hypothesis,</p>	<p>Student Responses</p> <p>Exit Cards</p> <p>Graded Lab Activities</p> <p>Lab Quiz</p>	<p>Textbook Bertino, A.J. & Bertino, P.N., (2016) Forensic Science. Boston, MA: Cengage Learning.</p>

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			currencies?			test, and analyze data		
5.1.12 Science Practices	A B C D	Forensic Entomology	How is forensic entomology used to help solve crimes? What is the significance of the four stages of blowfly metamorphosis in forensics and how are they affected by environmental conditions? How do forensic entomologists interpret information to estimate a post mortem interval?	25	Guided Notes Case Studies & Analysis Diagrams of Blowfly Life Stages Blowfly Lab (4-6 weeks) Housefly Activity p. 377 Lab: Factors Affecting Postmortem Interval Estimates and Accumulated Degree Hours	Follow precisely a complex multistep procedure, taking measurements, or performing technical tasks; analyze specific results based on explanations in the text Read and comprehend complex literary and informational texts independently and proficiently Generate a	Student Responses Exit Cards Graded Lab Activities Lab Quiz Entomology Test	Textbook Bertino, A.J. & Bertino, P.N., (2016) Forensic Science. Boston, MA: Cengage Learning.

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			What procedures and documentation need to be utilized when collecting insect evidence?			hypothesis, test, and analyze data		
5.1.12 Science Practices	A B C D	Death; Manner, Mechanism and Cause	<p>What is the difference between cellular death and death of an organism?</p> <p>What are the four manners of death?</p> <p>Distinguish between cause, manner and mechanism of death?</p> <p>What events</p>	10	<p>Guided Notes</p> <p>Case Studies & Analysis</p> <p>Lab: Calculating Postmortem Intervals Using Rigor Mortis</p> <p>Lab: Calculating Postmortem Intervals using Algor Mortis</p> <p>Lab: Tommy the</p>	<p>Follow precisely a complex multistep procedure, taking measurements, or performing technical tasks; analyze specific results based on explanations in the text</p> <p>Read and comprehend complex literary and informational</p>	<p>Student Responses</p> <p>Exit Cards</p> <p>Graded Lab Activities</p> <p>Lab quiz</p> <p>Death Test</p>	<p>Textbook Bertino, A.J. & Bertino, P.N., (2016) Forensic Science. Boston, MA: Cengage Learning.</p>

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			<p>happen in the first few minutes of death?</p> <p>How do algor, liver and rigor mortis develop after death?</p>		Tub	<p>texts independently and proficiently</p> <p>Generate a hypothesis, test, and analyze data</p>		
5.1.12 Science Practices	A B C D	Soil Examination	<p>What are the distinguishing characteristics and compositions in different soils?</p> <p>What are the four different sources of sand?</p> <p>How can soil analysis link a suspect, victim, tool or other</p>	10	<p>Guided Notes</p> <p>Case Studies & Analysis</p> <p>Lab: Examination of Sand</p> <p>Lab: Soil Evidence Examination</p> <p>Lab: Chemical Analysis of Sand</p>	<p>Read and comprehend complex literary and informational texts independently and proficiently</p> <p>Follow precisely a complex multistep procedure, taking measurements, or performing</p>	<p>Student Responses</p> <p>Exit Cards</p> <p>Graded Lab Activities</p> <p>Lab Quiz</p> <p>Soil Test</p>	<p>Textbook Bertino, A.J. & Bertino, P.N., (2016) Forensic Science. Boston, MA: Cengage Learning.</p>

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			evidence to a crime scene? How can soil surfaces reveal a gravesite? How is soil evidence collected?			technical tasks; analyze specific results based on explanations in the text Generate a hypothesis, test, and analyze data		
5.1.12 Science Practices 5.2.12 Isotopes	A B C D A.4	Forensic Anthropology	What information can be determined from skeletal remains? How does an adult skeleton differ from a child's skeleton? What types of skeletal trauma can be seen in	15	Guided Notes Case Studies & Analysis Lab: Determining the Age of a Skull Lab: Bones? Male or Female Web Quest – Identifying	Read and comprehend complex literary and informational texts independently and proficiently Follow precisely a complex multistep procedure, taking measurements,	Student Responses Exit Cards Graded Lab Activities Lab Quiz Forensic Anthropology Exam	Textbook Bertino, A.J. & Bertino, P.N., (2016) Forensic Science. Boston, MA: Cengage Learning.

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			<p>remains? How do isotopes help determine where one lives?</p> <p>What methods are used to analyze skeletal remains?</p>		<p>Romanovs</p> <p>Activity: Estimation of body size from individual bones</p>	<p>or performing technical tasks; analyze specific results based on explanations in the text</p> <p>Generate a hypothesis, test, and analyze data</p>		
5.1.12 Science Practices	A B C D	Glass Evidence	<p>What are the three major components of glass?</p> <p>How are soda glass, lead glass, and heat resistant glass different?</p> <p>How do you calculate the density of</p>	10	<p>Guided Notes</p> <p>Case Study & Analysis</p> <p>Lab: glass Fracture Pattern Analysis</p> <p>Lab: Glass Density</p> <p>Lab: Approximating the Refractive</p>	<p>Read and comprehend complex literary and informational texts independently and proficiently</p> <p>Follow precisely a complex multistep procedure, taking</p>	<p>Student Responses</p> <p>Exit Cards</p> <p>Graded Lab Activities</p> <p>Lab Quiz</p> <p>Glass Exam</p>	<p>Textbook Bertino, A.J. & Bertino, P.N., (2016) Forensic Science. Boston, MA: Cengage Learning.</p>

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			<p>glass?</p> <p>How are glass fragments compared?</p> <p>What information can be determined from analyzing bullet holes in glass?</p>		Index of Glass Using a Submersion Test	<p>measurements, or performing technical tasks; analyze specific results based on explanations in the text</p> <p>Generate a hypothesis, test, and analyze data</p>		
5.1.12 Science Practices	A B C D	Casts and Impressions	<p>How does impression evidence give clues about the crime scene, person(s) at the scene, and events that occurred at the scene?</p> <p>What documentation</p>	10	<p>Guided Notes</p> <p>Case Study and Analysis</p> <p>Lab: Making a Cast</p> <p>Lab: Shoe Size, Foot Size, Height</p> <p>Tire Impressions and Analysis</p>	<p>Read and comprehend complex literary and informational texts independently and proficiently</p> <p>Follow precisely a complex multistep procedure,</p>	<p>Student Responses</p> <p>Exit Cards</p> <p>Graded Lab Activities</p> <p>Lab Quiz</p> <p>Cast/Impression Exam</p>	<p>Textbook Bertino, A.J. & Bertino, P.N., (2016) Forensic Science. Boston, MA: Cengage Learning.</p>

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			<p>supports using impressions as class evidence?</p> <p>How are casts created?</p>		Lab: Dental Impressions	<p>taking measurements, or performing technical tasks; analyze specific results based on explanations in the text</p> <p>Generate a hypothesis, test, and analyze data</p>		

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