

# 11-Firearms and Ballistics

Content Area: **Science**  
Course(s):  
Time Period: **Full Year**  
Length: **2 weeks**  
Status: **Published**

## **General Overview, Course Description or Course Philosophy**

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In this course, you will apply the science you've learned throughout your high school years in a variety of ways to analyze and solve cases. Various aspects of chemistry, physics, biology and physiology, to name a few, will be utilized with this course. Many of the activities will be lab-base, as this course is an applied science course. This course should prove to be intriguing, through provoking and have a "gross-factor" that should keep you entertained!

## **OBJECTIVES, ESSENTIAL QUESTIONS, ENDURING UNDERSTANDINGS**

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Students will understand that: when a crime scene involves gunshots, a firearms and ballistics expert must be called in. Students will study the anatomy and operation of a firearm. They will investigate how to characterize casings and slugs. Finally, they will examine glass fractures to determine order and direction of slugs fired.

## **CONTENT AREA STANDARDS**

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MA.K-12.6	Attend to precision.
LA.RST.11-12.1	Accurately cite strong and thorough evidence from the text to support analysis of science and technical texts, attending to precise details for explanations or descriptions.
LA.RST.11-12.2	Determine the central ideas, themes, or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.
LA.RST.11-12.3	Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
MA.G-CO.D.12	Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.).
LA.RST.11-12.7	Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.
LA.RST.11-12.8	Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.
LA.RST.11-12.9	Synthesize information from a range of sources (e.g., texts, experiments, simulations) into

a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

MA.G-MG.A.1

Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

## **RELATED STANDARDS (Technology, 21st Century Life & Careers, ELA Companion Standards are Required)**

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TECH.9.4.12.CI.1	Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a).
TECH.9.4.12.TL.4	Collaborate in online learning communities or social networks or virtual worlds to analyze and propose a resolution to a real-world problem (e.g., 7.1.AL.IPERS.6).
TECH.9.4.12.IML.3	Analyze data using tools and models to make valid and reliable claims, or to determine optimal design solutions (e.g., S-ID.B.6a., 8.1.12.DA.5, 7.1.IH.IPRET.8).
TECH.9.4.12.IML.4	Assess and critique the appropriateness and impact of existing data visualizations for an intended audience (e.g., S-ID.B.6b, HS-LS2-4).

## **STUDENT LEARNING TARGETS**

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Refer to the 'Declarative Knowledge' and 'Procedural Knowledge' sections.

### **Declarative Knowledge**

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Students will understand that:

- what can be learned from firearm evidence

### **Procedural Knowledge**

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Students will be able to:

- discuss how a firearm operates
- collect and mark firearm evidence
- find points of comparison between slugs (striations, casing, firing pin marks, breach-face marks, extractor marks)
- determine direction and order of impact of slug by glass fracture analysis
- identify types of firearms
- identify parts of a firearm
- differentiate between rifling and caliber

## **EVIDENCE OF LEARNING**

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Refer to the 'Formative Assessments' and 'Summative Assessments' sections.

### **Formative Assessments**

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observation exercises

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exit/entrance tickets

quizzes

homework

### **Summative Assessments**

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- Benchmarks – departmental benchmark given at the end of MP1, MP2, and MP3 based on lab practices
- Alternative Assessments
  - Lab inquiries and investigations
  - Lab Practicals
  - Exploratory activities based on phenomenon
  - Gallery walks of student work
  - Creative Extension Projects
  - Build a model of a proposed solution
  - Let students design their own flashcards to test each other
  - Keynote presentations made by students on a topic
  - Portfolio

## **RESOURCES (Instructional, Supplemental, Intervention Materials)**

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<https://www.firearmsid.com/>

## **INTERDISCIPLINARY CONNECTIONS**

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Geometric analysis-math

## **ACCOMMODATIONS & MODIFICATIONS FOR SUBGROUPS**

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See link to Accommodations & Modifications document in course folder.