Guns

Content Area: **Science**
Course(s): **CP Forensics**
Time Period: **Marking Period 4**
Length: **2 weeks**
Status: **Published**

Course Pacing Guide

Unit	MP	Weeks
Guns	4	2

Unit Overview

In this unit, students learn about the miriad of firearms, the evolution of the gun, and the innerworkings of the weapon. They also learn about the distinct markings left on both the bullet and shell casing from the weapon and how this can be used to tie a particular weapon to a crime or a series of crimes.

Enduring Understandings

Students will gain the understanding of weapons and the forensic evidence they leave behind.

Essential Questions

What are the markings left on a bullet and how are they imprinted?

What are the markings left on the bullet cartridge and how are they made?

How can you determine the callaber of a bullet?

New Jersey Student Learning Standards (No CCS)

9-12.HS-ETS1-1.1.1	Analyze complex real-world problems by specifying criteria and constraints for successful solutions.
9-12.HS-ETS1-3.6.1	Evaluate a solution to a complex real-world problem, based on scientific knowledge, student-generated sources of evidence, prioritized criteria, and tradeoff considerations.

Amistad Integration

The Amistad Bill (A1301), which became law in 2002, calls on New Jersey schools to incorporate African-American history into their **social studies** curriculum.

This course does not fall in this category.

Holocaust/Genocide Education

a. Every board of education shall include instruction on the Holocaust and genocides **in an appropriate place in the curriculum** of all elementary and secondary school pupils.

This lesson does not fall in this category

Interdisciplinary Connections

VPA.1.1.12.C.CS2	Characters have physical, emotional, and social dimensions that can be communicated through the application of acting techniques.
VPA.1.3.12.C.CS2	Presentation of believable, multidimensional characters in scripted and improvised performances requires application of specific physical choices, sustained vocal technique, and clearly motivated actions.
CAEP.9.2.12.C.3	Identify transferable career skills and design alternate career plans.
TECH.8.1.12.C.CS4	Contribute to project teams to produce original works or solve problems.

Technology Standards

TECH.8.1.12.A.CS1	Understand and use technology systems.
TECH.8.1.12.A.CS2	Select and use applications effectively and productively.

TECH.8.1.12.B.CS2	Create original works as a means of personal or group expression.

21st Century Themes/Careers

CAEP.9.2.12.C.3	Identify transferable career skills and design alternate career plans.

Financial Literacy Integration

1. The State Board of Education shall require that a school district incorporate in each of the **grades [1][kindergarten] <u>six</u>[1] through eight** financial literacy instruction to pupils enrolled in those grades. The purpose of the instruction shall be to provide [1][elementary and][1]middle school students with the basic financial literacy necessary for sound financial decision-making.

This course dose not fall in this range.

Instructional Strategies & Learning Activities

Ballistics Lab

Station 1

At this station you are to determine from which crime scene a bullet was recovered.

The large, oversized bullet is a model of a suspect bullet. There are two crime scene bullet ends which attach via magnet to the end of the recovered bullet. When attached, the suspect pieces can be fully rotated for land and groove examination and comparison.

Your task is to determine which suspect bullet matches the crime scene bullet. Make sure you not only note the size of the lands and grooves, but also use the magnifying glasses to match the striations. DO NOT MAKE ANY MARKINGS ON THE BULLETS IN YOUR ANALYSIS.

When you have determined your match, indicate on your data sheet which crime scene and the groove matchings (letter to number).

Ballistics Lab

Station 2

At this station you are to determine which of three suspect bullets matches a bullet recovered from a crime scene.

On the bottom of each enclosed bullet is a label. Find the bullet labeled “Crime Scene”. This is the bullet recovered from the crime scene. The other three bullets are labeled “suspect one”, “suspect two”, and “suspect three”.

Your task is to determine which suspect bullet matches the crime scene bullet. Make sure you not only note the twist and size of the lands and grooves, but also use the magnifying glasses to match the striations. DO NOT MAKE ANY MARKINGS ON THE BULLETS IN YOUR ANALYSIS.

Be sure to complete the data chart in your packet.

Ballistics Lab

Station 3

At this station you are to determine the caliber of 6 bullet models.

For each of the model bullets, use the calipers to measure the diameter of the bullet head at its widest possible

location. Make sure you do not accidently measure the cartridge diameter.

Record each measurement in millimeters and inches in your data table.

1 2 3 4 5 6

Ballistics Lab

Station 4

At this station you are to determine which of three suspect bullet cartridges matches a bullet cartridge recovered from a crime scene.

On the bottom of each enclosed cartridge is a label. Find the cartridge labeled “Crime Scene”. This is the cartridge recovered from the crime scene. The other three cartridges are labeled “suspect one”, “suspect two”, and “suspect three”.

Your task is to determine which suspect bullet cartridge matches the recovered bullet cartridge. Use the magnifying glasses to analyze the breechblock, firing pin, ejector, and extractor markings. DO NOT MAKE ANY MARKINGS ON THE CARTRIDGES IN YOUR ANALYSIS.

Be sure to complete the data table in your packet.

Ballistics Lab

Station 5

At this station you are to determine the trajectories of three recovered bullets from a crime scene, as well as locate the potential location(s) of the shooter.

Locate the three bullet holes in the walls. Insert a plug and a tube in each bullet hole. Measure the angle the tube makes with the wall and record in the data table.

Using the angle measures, sketch trajectory paths for the three bullets on your floorplan. If any of them intersect, identify the point of intersection as a potential location of the shooter.

BE SURE YOUR PACKET IS COMPLETED.

Remove plug and tube from the wall when you are finished.

Data Table 1

Station 1

Crime Scene (circle one): one two

Groove Matches:

1 ___

2 ___

3 ___

4 ___

5 ___

6 ___

Data Table 2

Station 2

Bullet	Twist	Match?	Reasons?
Crime Scene		Do not write anything here	Do not write anything here
Suspect 1			

Suspect 2			
Suspect 3			

Data Table 3

Station 3

Bullet	mm	in
1		
2		
3		
4		
5		
6		

Data Table 4

Station 4

Cartridge	Match?	Reasons? (be specific)
Crime Scene		
Suspect 1		

Suspect 2		
Suspect 3		

Data Table 5

Station 5

Bullet	1	2	3
Angle			

Sketch the three bullet holes on the right wall and draw their trajectory lines. Indicate if they intersect and draw any conclusion based on this evidence.

Front

Differentiated Instruction

- Curriculum Map
- Inquiry/Problem-Based Learning
- Learning preferences integration (visual, auditory, kinesthetic)
- Tiered Learning Targets
- Learning through play
- Relationship-Building & Team-Building
- Self-Directed Learning
- Debate
- Student Data Inventories
- Mastery Learning (feedback toward goal)
- Goal-Setting & Learning Contracts
- Grouping
- Rubrics
- Flipped Classroom
- Mentoring
- Assessment Design & Backwards Planning

Formative Assessments

Open ended questions saked durring the lesson to gague student understanding and address any misconceptions. Students will also work on an on-line program to match bullets from a crime scene to a bullet fired from a suspects weapon.

http://www.firearmsid.com/

Summative Assessment

Students work around the room at five different stations where they have to determine the callaber of a bullet, match a bullet to a bullet from a suspects weapon, determine the direction a bullet was coming from based on bullet holes, match a shell casing to one found at the crime scene, and match an oversized fragment to an oversized bullet lining up the riffiling marks.

Benchmark Assessments

There are no gradelevel standards for this class.

Alternate Assessments

Students work around the room at five different stations where they have to determine the callaber of a bullet, match a bullet to a bullet from a suspects weapon, determine the direction a bullet was coming from based on bullet holes, match a shell casing to one found at the crime scene, and match an oversized fragment to an oversized bullet lining up the riffiling marks.

This is a change from the traditional paper based assessment.

Resources & Technology

Powerpoint ans SMART Board presentations are used to introduce new material.

Students will also work on an on-line program to match bullets from a crime scene to a bullet fired from a suspects weapon.

http://www.firearmsid.com/

BOE Approved Texts

Saferstein, Richard, 1941-. Criminalistics : An Introduction to **Forensic Science**. Upper Saddle River, NJ :Prentice Hall, 1998.

Closure

Students work around the room at five different stations where they have to determine the callaber of a bullet, match a bullet to a bullet from a suspects weapon, determine the direction a bullet was coming from based on bullet holes, match a shell casing to one found at the crime scene, and match an oversized fragment to an oversized bullet lining up the riffiling marks.

ELL

- Teacher Modeling
- Group work
- Simplified Written and Verbal Instructions
- Google Translate

Special Education

- Specify and list exactly what the student will need to learn to pass.
- Evaluate the classroom structure against the student's needs (flexible structure, firm limits, etc.).
- Keep workspaces clear of unrelated materials.
- Reduce visual distractions in the classroom (mobiles, etc.).
- Provide a computer for written work.
- Seat the student close to the teacher or a positive role model.

- Provide an unobstructed view of the chalkboard, teacher, movie screen, etc.
- Keep extra supplies of classroom materials (pencils, books) on hand.
- Maintain adequate space between desks.
- Give directions in small steps and in as few words as possible.
- Number and sequence the steps in a task.
- Have student repeat the directions for a task.
- Provide visual aids.
- Go over directions orally.
- Allow the student to complete an independent project as an alternative test.
- Grade spelling separately from content.
- Show a model of the end product of directions (e.g., a completed math problem or finished quiz).
- Stand near the student when giving directions or presenting a lesson.

504

- preferential seating
- extended time on tests and assignments
- modified textbooks or audio-video materials
- behavior management support
- excused lateness, absence, or missed classwork

At Risk

- Have student restate information
- Provision of notes or outlines
- Concrete examples
- Assistance in maintaining uncluttered space
- No penalty for spelling errors or sloppy handwriting
- Follow a routine/schedule
- Teach time management skills
- Verbal and visual cues regarding directions and staying on task
- Visual daily schedule
- Immediate feedback
- Work-in-progress check
- Pace long-term projects
- Cue/model expected behavior
- Use de-escalating strategies
- Use peer supports and mentoring
- Chart progress and maintain data

Gifted and Talented

Focus on effort and practice

Offer the Most Difficult First

Offer choice

Speak to Student Interests

Allow G/T students to work together

Encourage risk taking