

Blood

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

Course Pacing Guide

	Unit	MP	Weeks
Blood		4	4

Unit Overview

In this unit, students will gain the understanding of blood in two different ways, blood typing and blood spatter pattern analysis.

Enduring Understandings

Students will gain the understanding of blood type, how blood type is determined, and what blood types can be donors and/or recipients of other blood types.

Students will gain the understanding of blood spatter patterns and how to look at blood drops to determine the direction they were traveling when striking the surface.

Essential Questions

What is the ABO Blood typing system?

How can you determine the blood type of a sample of blood?

How can you determine the direction a blood drop was traveling?

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

MA.G-SRT.C.6	Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.
MA.G-SRT.C.8	Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.
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.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] six¹ through eight** financial literacy instruction to pupils enrolled in those grades. The purpose of the instruction shall be to provide ¹[elementary and]¹middle 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

Blood Typing assignment

Name_____

Antiserums

Blood Type	A	B	Rh
	+	+	--
	--	+	+

	+	--	--
	+	+	+
	-	-	+
AB -			
A+			
B-			
O+			
B-			
AB +			

A "+" indicates agglutination and a "-" indicates no reaction.

Data Table A

Height of Blood Drop	Diameter of Blood Drop	Sketch of Blood Drop
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15 cm

30 cm

45 cm

60 cm

75 cm

100 cm

150 cm

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 asked during the lesson to gauge student understanding and address any misconceptions.

Summative Assessment

Students are given several samples of blood and asked to type them and eliminate suspects based on their blood type.

Benchmark Assessments

There are no gradelevel standards for this class.

Alternate Assessments

Students are given several samples of blood and asked to type them and eliminate suspects based on their blood type.

This is an alternative to the traditional written test.

Resources & Technology

Powerpoint and SMART Board presentations are used to introduce new material. We also use props and fake blood to set up the crime scene for investigation.

BOE Approved Texts

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

Closure

Students are given several samples of blood and asked to type them and eliminate suspects based on their blood type.

This is an alternative to the traditional written test.

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