

Unit Title: Blood Tells a Story

Grade Level: (example: 9, 10, 11, 12 or 7-8) 7-8

Subject Area: (example: Science, Physics; English, Short Stories) Forensics

Duration/Length/Number of class periods: (example: 5 class periods) 4 - 82 minute Class Periods

Description: Students will be able to create and explain how blood spatter patterns are a function of height, motion and angle, then analyze the patterns to support a claim using evidence.

Established Goals (National, State, Local): 8.1.1.2.1 Scientific inquiry is a set of interrelated processes incorporating multiple approaches that are used to pose questions about the natural and engineered world and investigate phenomena. Use logical reasoning and imagination to develop descriptions, explanations, predictions and models based on evidence. 7.1.1.1.2 Science is a way of knowing about the natural world and is characterized by empirical criteria, logical argument and skeptical review. Understand that when similar investigations give different results, the challenge is to judge whether the differences are significant, and if further studies are required. *For example:* Use mean and range to analyze the reliability of experimental results. 7.1.1.2.2 Scientific inquiry uses multiple interrelated processes to investigate questions and propose explanations about the natural world. Plan and conduct a controlled experiment to test a hypothesis about a relationship between two variables, ensuring that one variable is systematically manipulated, the other is measured and recorded, and any other variables are kept the same (controlled).

What Enduring Understandings are desired? I can design an experiment to test a hypothesis.

I can identify the variables in an experiment.

I can predict the relationship between the variables in an experiment.

I can gather data during an experiment.

I can create a data table to record my data.

I can analyze the recorded data to look for patterns and trends.

I can explain the relationship between the variables in an experiment.

What Essential Questions will be considered? How does the blood spatter analysis of height, motion and angle help to create the story of a crime scene?

Students will know / be able to: I can design an experiment to test a hypothesis.

I can identify the variables in an experiment.

I can predict the relationship between the variables in an experiment.
 I can gather data during an experiment.
 I can create a data table to record my data.
 I can analyze the recorded data to look for patterns and trends.
 I can explain the relationship between the variables in an experiment.

Description <i>Units must include at least one of each formative, summative, introductory activity and learning activity. Check the appropriate box; one per row.</i>	Fo rm ati ve	Su m m ati ve	Intr odu ctor y Acti vity	Lea rnin g Acti vity	Stu den t Tec hno logy Use d	Teac her Tec hno logy Used	ISTE Stan dard s
I notice/I wonder using a crime scene picture with various blood spatter patterns and Padlet to document and share student responses. After the I notice/I wonder, students will write a brief story about the scene and what happened to create the scene. Students can volunteer to share their story with the rest of class.			X		X		
Blood spatter lab. In a small group, students will design and implement a lab on height, speed or angle. The variable chosen can be random or group selected, but between all groups in class, all variables will be tested. Students will decide on group roles (examples: Project Director, Technical Manager, Materials Manager and Safety Director) prior to experimental design. The lab design will be approved by the teacher before moving to the next stage. As students conduct their experiment, they will record data, then analyze that data at the end of the lab. Students will be given all materials needed for their experiment, but will only be given a certain allotment of blood each day they can use.	X			X	X		1
Spatter pattern notes. During a brief lecture/discussion, students will take notes on terms and concepts related to blood spatter patterns and analysis of those patterns.				X		X	
Forensic File Analysis - The House That Roared (focuses on blood spatter). Episode link: https://www.youtube.com/watch?v=iRVFnD7BEV4 . While students watch the episode, they will complete a graphic organizer to document: the suspect(s), the victim(s), pieces of evidence and a written summary with a focus on how blood spatter helped in this case.				X		X	
Final (written) lab report and Short Presentation of Spatter lab. In a final lab write-up students will include their question, hypothesis, variables (identify), experimental design, data, analysis of data and a conclusion. Groups will give a brief presentation to the rest of the class on what they did and what they found out in their experiment. Students will share with others by adding to a shared slides presentation. (Glogster)		X			X	X	6
Rewrite/add to the original story about what happened in the crime scene photo. Students should use specific examples of spatter and evidence to support their claims.		X					6

Materials, tools and resources Fake blood, Crime Scene Picture w/ Blood Spatter Patterns, Beakers, Aprons, Plastic Droppers, Rulers, Meter Sticks, Notecards, Clipboards, Protractor, Chromebooks, White Paper (8.5 x 11in and Butcher Paper), Student Phones, Slides presentation with Spatter Notes, Printed pictures of Crime Scene

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