366834

Introduction to Blood Spatter Analysis Lab Activity

Aligned With All Published National Standards

IMGN 250 8039

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* The Dimension I practices listed below are called out as **bold** words throughout the activity.

DIMENSION 1 Science and Engineering Practices

X	Asking questions (for science) and defining problems (for engineering)	X	Use mathematics and computational thinking
X	Developing and using models	X	Constructing explanations (for science) and designing solutions (for engineering)
X	Planning and carrying out investigations	X	Engaging in argument from evidence
X	Analyzing and interpreting data	X	Obtaining, evaluating, and communicating information

DIMENSION 2 Cross Cutting Concepts

X	Patterns		Energy and matter: Flows, cycles, and conservation
X	Cause and effect: Mechanism and explanation		Structure and function
X	Scale, proportion, and quantity		Stability and change
	Systems and system models		

DIMENSION 3 Core Concepts

Discipline	Core Idea Focus
Physical Science	PS2: Motion and Stability: Forces and Interactions

x Indicates standards covered in activity

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Middle School Standards Covered	High School Standards Covered
MS.PS2-1: Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects.	HS.PS2-1: Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.
MS.PS2-2: Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.	HS.PS2-4: Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.
MS.PS2-4: Construct and present arguments using evidence to support the claims that gravitational interactions are attractive and depend on the masses of interacting objects.	

(continued on next page)

standards/learning objectives

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Content Standards (K-12)			
X	Systems, order, and organization		Evolution and equilibrium
X	Evidence, models, and explanation		Form and Function
X	Constancy, change, and measurement		

Physical Science Standards Middle School		Physical Science Standards High School	
X	Motions and Forces	X	Motions and Forces

x Indicates standards covered in activity

benchmarks for science literacy (AAAS, © 1993)

1. The Nature of Science	1B: Scientific Inquiry
	1C: The Scientific Enterprise
2. The Nature of Mathematics	2A: Patterns and Relationships
	2B: Mathematics, Science, and Technology
4. The Physical Setting	4F: Motion
	4G: Forces of Nature
9. The Mathematical World	9C: Shapes
11.Common Themes	11B: Models

activity objectives:

- Establish the relationship between blood dropping height and blood drop diameter
- Recognize patterns around the drop, such as satellite spatter or spines
- Develop an understanding of the common types of bloodstain patterns found at a crime scene
- Create and examine vertical blood drop patterns on various textured surfaces
- Acquire a qualitative understanding of the relationship between the impact angle of a blood droplet striking a surface versus the shape of the resulting stain
- Differentiate between high velocity and medium velocity impact spatter

time requirement:

Three to four 45-minute periods