366804

Simulated Blood Typing "Whodunit" Lab Activity

Aligned with All Published National Standards

ward's science

IMGN 250 8006

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overview

This lab addresses several different approaches for conducting a crime scene investigation. Its scenario-based activity allows students to become detectives and determine "whodunit" while using WARD'S completely safe Simulated Blood. Students attempt to solve a crime by matching the blood type of samples found at the "scene" with those of several suspects. After extracting samples from crime scene fabric stained with WARD'S Simulated Blood, students can analyze them under the microscope, and match the blood type to one of four suspects to help determine the culprit's identity.

materials included:

- 1 Vial, WARD'S Simulated Blood - Crime scene
- 1 Vial, WARD'S Simulated Blood - Victim's blood
- 1 Vial, WARD'S Simulated Blood - Suspect #1
- 1 Vial, WARD'S Simulated Blood - Suspect #2
- 1 Vial, WARD'S Simulated Blood - Suspect #3
- 1 Vial, WARD'S Simulated Blood - Suspect #4
- 1 Vial, anti-A serum
- 1 Vial, anti-B serum
- 1 Vial, anti-Rh serum
- Blood typing trays (36)
- 2 Packages of toothpicks
- 1 Package of microscope slides (72)
- 1 Piece of cloth

materials not provided:

- Compound microscopes
- Petri dish
- Scissors
- Wax pencils
- Distilled water

number of uses:

This activity can be successfully performed once with the materials provided. It is designed for six groups of students.

A refill kit is available for this lab activity: 360038.

Visit wardsci.com for replacement materials.

framework for K-12 science education © 2012

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

DIMENSION 1 Science and Engineering Practices

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

DIMENSION 2 Cross Cutting Concepts

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

DIMENSION 3 Core Concepts

Discipline	Core Idea Focus
Life Science	LS1: From Molecules to Organisms: Structures and Properties
	LS3: Heredity: Inheritance and Variation of Traits

× Indicates standards covered in activity

next generation science standards © 2013

Middle School Standards Covered	High School Standards Covered
MS.LS1-2: Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.	HS.LS1-2: Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.
	HS.LS3-1: Ask questions to clarify relationships about the role of DNA and chromosomes in coding the instructions for characteristic traits passed from parents to offspring.

(continued on next page)

standards/learning objectives

national science education standards © 1996

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

Life Science Standards Middle School		Life Science Standards High School	
X	Structure and Function in Living Systems	X	The Cell

X Indicates standards covered in activity

benchmarks for science literacy (AAAS, © 1993)

1. The Nature of Science	1A: The Scientific World View
	1B: Scientific Inquiry
5. The Living Environment	5A: Diversity of Life
6. The Human Organism	6A: Human Identity
11. Common Themes	11B: Models

activity objectives:

- Assume the role of a forensics lab technician
- Examine suspected blood evidence found at a crime scene
- Confirm that the evidence is blood opposed to any other substance
- Perform the ABO/Rh procedure to determine the blood type
- Relate the evidence to four possible suspects

time requirement:

This activity will take approximately 30-45 minutes to complete.

lab specific safety:

- WARD'S Simulated Blood does NOT need to be refrigerated and has an indefinite shelf life.
- All simulated blood components in this lab activity are biohazard free and can be discarded in the garbage can.

general safety:

- The teacher should 1) be familiar with safety practices and regulations in his/her school (district and state) and 2) know what needs to be treated as hazardous waste and how to properly dispose of non-hazardous chemicals or biological material.
- Consider establishing a safety contract that students and their parents must read and sign. This is a good way to identify students with allergies (e.g., latex) so that you (and they) will be reminded of specific lab materials that may pose risks to individuals.
- Students should know where all emergency equipment (safety shower, eyewash station, fire extinguisher, fire blanket, first aid kit etc.) is located.
- Require students to remove all dangling jewelry and tie back long hair before they begin.
- Remind students to read all instructions, Safety Data Sheets (SDSs) before starting the lab activities, and to ask questions about safety and safe laboratory procedures.
- As general laboratory practice, it is recommended that students wear proper protective equipment, such as gloves, safety goggles, and a lab apron.

at the end of the lab:

- Remind students to wash their hands thoroughly with soap and water before leaving the laboratory.

teacher notes

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