470213-398

Luminol Detection of Simulated Blood Demonstration Kit

Aligned with All Published National Standards

ward's science

table of contents

Ward's in-house scientists are always on call to assist you with your questions. Our expert can provide personal solutions and product advice for your curriculum.
Email sciencehelp@vwr.com
or call 800-962-2660 to get started.

© 2013 WARD'S Science All Rights Reserved
KIT 470213-398- v. 10/15

overview

Many criminals try to clean up the blood left at a crime scene, but forensic scientists can still detect it using a luminol solution to find trace amounts. In this activity, your students will be doing just this as a luminol solution is used to discover where simulated blood evidence may exist. The students' understanding of these activities will allow them to observe a luminol reaction and understand how luminol is used at crime scenes.

materials included:

- WARD'S Simulated Blood for blood spatter, 60 mL
- 20% Copper Sulfate solution, 15 mL
- 15 mL dropping bottle with tip and cap
- 5 vials of powdered luminol
- Spray bottle for luminol solution, 120 mL

materials not provided:

- Distilled water
- Paper towels

number of uses:

This demonstration can be successfully performed five times with the materials provided.

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
Physical Science	PS1: Matter and Its Interactions

next generation science standards © 2013

Middle School Standards Covered	High School Standards Covered
MS.PS1-2: Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.	HS.PS1-2: Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties.
	HS.PS1-4: Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends on the changes in total bond energy.

× Indicates standards covered in activity

© 2013 WARD'S Science All Rights Reserved
KIT 470213-398- v. 10/15

standards and learning objectives

national science education standards © 1996

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

Physical Science Standards Middle School		Physical Science Standards High School	
×	Properties and Changes of Properties in Matter	×	Structure and Properties of Matter
		×	Chemical Reactions

Science and Technology Standards Middle School		Science and Technology Standards High School	
×	Understanding about science and technology	×	Understanding about science and technology

× Indicates standards covered in activity

benchmarks for science literacy (AAAS, © 1993)

1. The Nature of Science	1A: The Scientific World View
	1B: Scientific Inquiry
3. The Nature of Technology	3A: Technology and Science
4. The Physical Setting	4D: Structure of Matter
	4E: Energy Transformations
11. Common Themes	11B: Models

activity objectives:

- Use a luminol solution to discover where simulated blood is present at a "crime scene."
- Observe a luminol reaction with simulated blood.

time requirement:

45 minutes

lab specific safety:

- Wear gloves, apron and goggles when performing this demonstration. Simulated Blood will stain your clothing.

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 and 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.
- All laboratory bench tops should be wiped down with a 10% bleach solution or disinfectant to ensure cleanliness.

teacher notes

© 2013 WARD'S Science All Rights Reserved

5100 West Henrietta Rd • PO Box 92912 • Rochester, NY 14692-9012 • p: 800 962-2660 • f: 800 635-8439 • wardsci.com