CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY

Name(s)

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Project Number

31022

Project Title

The Science of Blood Splatter Analysis

Abstract

Objectives/Goals

The purpose of this experiment is to learn whether and how the texture or the angle of a blood splattered surface might affect the interpretation of the evidence found at a crime scene by a crime scene investigator.

Methods/Materials

A syringe was suspended at a fixed position 35 cm directly above the target splatter surface. 1.5 milliliters of simulated blood was ejected from the syringe with each test. The simulated blood was mixed in one batch, covered to minimize evaporation, and testing was done in a single working period to minimize change of viscosity of the blood. A 3.5 kg block was dropped 35 cm on a pulley to strike the syringe plunger with each test in order to maintain consistent speed and pressure on the plunger. The resulting splatter patterns were righted and held flat for drying immediately after the splatter impact to maintain a natural splatter pattern without the effect of gravity (dripping). The smooth surface was tested at 45, 90 (flat to the syringe tip), and 120 degree angles to the tip of the syringe with the middle of the impact zone (also the pivot point of the surface) 35 cm from the tip of the syringe. A cinder block was used for the rough and absorbent surface texture and was only tested flat (at a 90 degree angel to the syringe tip).

Results

My results were that an oblique angle did affect the length of the splatter. On cinder block the divots and absorption of the rough surface decreased the spread of the splatter.

Conclusions/Discussion

The information gathered from this experiment shows that specific conditions at a crime scene can affect the evidence. By documenting these effects we should be able to improve the interpretation of the evidence by investigators and help solve mysteries and crimes.

Summary Statement

Testing and observing different angles of blood splatter onto a surface to determine the effect on the resulting pattern.

Help Received

Father was expert mentor. Mother assisted with visual layout.

Preliminary