EXPERIMENT

# A MATTER OF SPATTER

*"Art in the blood is liable to take the strangest forms"*

—Sherlock Holmes, *The Adventure of the Greek Interpreter*

***Continued***

kind of object caused the injury. Crime labs can even take into account the angle, size, and shape of spatter in order to reveal detailed information about the scene of a crime. However, it is important to remember that these kinds of analyses are complex—forensic science is not as easy as it appears on TV crime shows! Even with the most careful observation, experts in blood spatter analysis sometimes still disagree with interpretations of blood spatter patterns.

## *What Next?*

Try doing the experiment again, but this time keep the dropper at a fixed height and adjust the angle of the paper for each drop. Does the spatter change when the blood impacts at a 20° angle and a 70° angle? How do you think this kind of information about the impact angle of blood might be useful?



# *A* MATTER *of* SPATTER

*"Let us have some fresh blood..."*

—Sherlock Holmes, *A Study in Scarlet*

If the sight of blood makes you dizzy, you might not be cut out for a career as a blood spatter expert. But for cool-headed, careful observers that are just a little on the morbid side, blood spatter can be a fascinating study. The size, angle, and shape of the drops of blood left at a crime scene can help forensic scientists determine what happened during the crime.

SHERLOCK HOLMES WAS NO STRANGER TO BLOOD ANALYSIS—THE SUBJECT FEATURES PROMINENTLY IN

A STUDY IN
# SCARLET

in which Holmes is developing a test to determine if a stain is blood. These investigations made Sherlock the precursor to modern-day forensic scientists, who study the fingerprints, DNA, and blood spatter that are left at a crime scene.

*This activity will guide you through collecting data of simulated blood spatters. You will investigate how the height from which the blood falls can affect the final shape of the spatter.*

EXPERIMENT

# A MATTER OF SPATTER

**Materials**

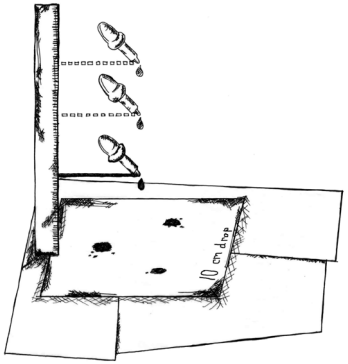
- ☐ Newspaper or tablecloth
- ☐ Five sheets of blank paper
- ☐ Eye dropper □
- ☐ Washable tempera paint
- ☐ Water

**Before You Begin**

You will first create the simulated blood solution. Mix equal amounts of washable tempera paint and water. Use red paint mixed with a few drops of blue or purple for a blood-colored solution, or any preferred color.

**Procedure**

1. Cover the testing area with newspaper or a tablecloth.
2. Label one piece of paper "10 cm drop" and place it in the middle of the newspaper. Allow one drop of liquid to fall from the dropper onto the paper from a height of 10 cm. Repeat this step in different spots around the paper so that there are a total of five separate drops. Try not to let the drops overlap.






EXPERIMENT

A MATTER OF SPATTER

3. Repeat Step 2 from heights of 30 cm, 50 cm, 70 cm, and 100 cm. Make sure that you label each piece of paper with the correct height.
4. After allowing each paper to dry, measure the diameter of each of the droplets and record the measurements.
5. Calculate the average of your five measurements to determine the average diameter of the spatter from each height.
6. How does the spatter size change as the height increases?

## *What's Going On?*

Did you notice a difference in what the spatter looked like as you increased the height of the drop? The spatter got bigger! That's because gravity causes the blood to increase its speed when it has a longer distance to fall, and the increased speed results in a stronger impact when the blood hits the surface. This stronger impact, in turn, creates a wider spatter.

When police examine bloodstains at a crime scene, they look for many details including the size and shape of the spatter. Knowing this kind of information can help the police figure out where the victim was when they were injured and what