Name _____   Date _____

COLD BLOOD
A Lab on Blood-Drop Analysis

Objectives

You will create blood drop patterns from various angles and heights.

You will compare a blood drop from a crime scene with blood drop patterns.

Background Information

Mrs. Kent's dog, Homer, likes to escape from his pen and roam about the neighborhood. Everyone loves Homer, even though he has a bad habit of picking up everything he finds. On one occasion, he brought Mrs. Kent a glove he found in a neighbor's yard. Another time, he dragged home a blanket that he had pulled from a clothesline. Homer's kleptomaniac behavior always embarrasses Mrs. Kent.

This evening, Mrs. Kent arrives home to find that Homer has escaped again. She leaves her groceries and bags in the car and immediately begins calling him. After several minutes, Homer can be seen loping toward her with something in his mouth. When he arrives, the big dog proudly drops his package at Mrs. Kent's feet.

Mrs. Kent is relieved to see that all Homer has brought home tonight is a few sheets of newspaper. They don't even look like new papers because they are dirty and wrinkled. After returning Homer to his pen, Mrs. Kent begins gathering up his mess. She stops when her hand touches something sticky. It looks like blood.

Mrs. Kent stacks the bloody papers on the back porch, then goes into the house to call the police. The police are very concerned about Homer's find, and Detective Larson arrives at her house within a few minutes.

Larson asks Mrs. Kent a lot of questions about what time she got home, what time Homer brought her the papers, and whether or not she had any idea where the papers came from. Larson is excited about Homer's find because early this morning a young woman was found beaten to death in the trunk of her car. Evidence suggested that she had not been killed in the car, and police were looking for any clues that might help catch her killer.

Taking the stained newspaper back to his office, Larson stops by the lab. After giving the lab technician all pertinent data, Larson leaves the papers so that the technician can determine whether or not the blood belongs to the murder victim. Analysis can also reveal the height from which the blood droplets fell, and the angle of the ground on which they fell. These clues might help Larson determine where she was killed.

Materials

Sample of "blood" in 100 ml beaker

Lab apron

Newspapers

Protractor

Plastic knife

Yard or meter stick

Stake

Small board or string

Pen or marker

Sample of "blood droplet" on newspaper from crime scene

Procedure, Part A:
Create a set of bloodstain patterns

1. Go outdoors. Spread four sheets of newspaper across level ground. Put on your lab apron.

2. Dip the plastic knife in the "blood." Holding the knife at a height of 12 inches, walk across one of the newspapers, allowing six or eight drops of "blood" to fall on the paper. Label these as "12-inch blood drops at 90 degrees."

3. Again, dip the knife in the "blood." Holding the knife at a height of 24 inches, walk across another one of the newspapers to create six or eight drops of "blood." Label these as "24-inch drops at 90 degrees."

4. Repeat this process at 36 inches and at 48 inches.

5. Place another four sheets of newspaper on a gentle slope or hillside.

6. Repeat steps 2 through 4 on the newspapers that are spread on the gentle slope.

7. Place another four sheets of newspaper on a steep slope or hillside.

8. Repeat steps 2 through 4 on the newspapers that are spread on the steep slope.

Procedure, Part B:
Comparing a bloodstain from a crime scene with your bloodstain patterns

1. Your teacher will give you a piece of blood-stained newspaper from the crime scene.

2. Analyze the stain by comparing it with the work you did in Part A.

3. Complete the following Data Table.

DATA TABLE

Information of size and shape of blood drop from crime scene.

A. Shape and size of droplet	B. Height from which droplet fell	C. Droplet fell on flat ground, gentle slope, steep slope

Postlab Questions

1. Was the bloodstain from the crime scene similar to any of the bloodstains you created in steps 1 through 8? If so, which ones?

   _____

   _____

   _____

   _____

2. Based on your work, was the crime committed on a flat area, a gently sloping area, or a steeply sloping area?

   _____

   _____

3. If you were Detective Larson, how would you use the information gathered in lab today to help solve this crime?

   _____

   _____

   _____

   _____

   _____

4. What information can be determined by examining a blood drop?

   _____

   _____

   _____

   _____