

Group #: _____

Name: _____

Date: _____

Class Activity #3: Bloodstain

At the end of this activity, you will be able to:

1. identify the basic geometric shapes and patterns formed by droplets of blood when they impact various target surfaces at various angles and heights.
2. explain the effects of surface textures on the geometry of blood droplets.
3. explain how blood smears and contact patterns are transferred.

Learning Activity:

1. Observe and memorize the basic geometric shapes and patterns formed by droplets of blood on target surfaces at different heights and angles.
2. Observe and annotate the manner in which surface textures determine the geometric shapes and patterns of blood droplets.
3. Study how blood smears and contact patterns are transferred.

Materials:

1. Artificial blood (provided by the instructor)
2. Disposable pipettes
3. Plain white papers
4. Pieces of cardboards, plastic, and wood
5. Tongue suppressor
6. Paper towels
7. Newspapers or plastic sheets
8. Tape measure, ruler, and protractor
9. Beakers

Methodogy:

*Note: Before the start of the activity, the instructor will assign a particular test surface (paper, cardboard, plastic, or wood) to each group.

A. For Shapes and Patterns at Various Heights

1. Place the test surface on the floor.
2. Using a disposable pipette, draw out some artificial blood and wipe off any excess blood from the pipette. If there is any air bubble present inside the pipette, gently tap the pipette with your finger to remove it. Then, release a drop of the artificial blood from the heights of 1, 4, 36, and 72 inches downward on the test surface.
3. Observe the shapes and patterns of the blood droplet from these heights and record your findings on the test surface.

B. For Shapes and Patterns at Various Angles

1. Using a disposable pipette, draw out some artificial blood as previously instructed.
2. Release a drop of the artificial blood onto the test surface placed at 45 degrees and 75 degrees to the floor from a height of 12 inches.

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3. Release another drop of the artificial blood on the test surface placed at 45 degrees to the floor from a height of 36 inches.

For the Effects of Various Surface Textures

1. Compare your findings with those groups who performed the same exercise using other types of surfaces.

For the Blood Smears and Contact Patterns

1. Create a smear on the test surface using a tongue suppressor.
2. Create a contact pattern (i.e., a fingerprint) on the test surface.

Results (Table1):

A. For Shapes and Patterns at Various Heights

1. Describe the texture of the test surface (e.g., "hard/soft, smooth/rough, porous/nonporous, and absorbent/nonabsorbent", etc.).

2. Draw and describe the appearance of each droplet released at each height (1, 4, 36, and 72 inches).

3. Measure the diameter of each stain.

4. How much splattering occurs with each droplet?

B. For Shapes and Patterns at Various Angles

1. Draw and describe the appearance of each droplet released with the test surface at 45 and 75 degrees.

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2. Measure the diameter of each stain.

4. How much splattering occurs with each droplet?

C. For the Effects of Surface Textures

1. Compare and contrast the features of the droplet on the different types of surfaces.

D. For the Smears and Contact Patterns

1. Describe the smear and contact patterns observed.

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Table 1. Characteristics of Artificial Blood Droplets

	Surface Texture	Heights				Angles		Smears	Contact Pattern
		1"	4"	36"	72"	45°	75°		
Paper									
Cardboard									
Plastic									
Wood									