ForensiKit

Blood Spatter

Effect of Height on Blood Droplets

Tip: This activity works best with at least two people

Materials needed:

- Tape measure
- Pen or pencil
- Chair or stepladder (optional)
- Cell phone or camera (optional)

1. Make sure your Blood Drop Height activity chart is nearby but not in the way.
   - If you need more copies, download a printable chart at https://forensikit.com/blood-spatter/
2. Use the ruler or tape measure to measure a height of 25 cm from your work surface.
   - Having one person hold the tape measure or ruler while another drops the blood will make this easier.
3. Follow the procedure to apply three drops of blood onto the newsprint from 25 cm above it.
   - Don't forget to label each drop.
4. Repeat from heights of 50 cm, 75 cm, 100 cm, 125 cm, 150 cm, 175 cm, and 200 cm.
   - Use the chair or stepladder as needed for the taller heights.
5. Measure the diameter in centimeters of each drop, and record the measurements in your chart.
   - Note in the chart the presence of any satellites or spikes associated with each drop.
   - Use the ABFO scale and your cell phone or camera to photograph each drop and its measurement. (optional)
6. Calculate the average diameter of the three drops and document it in your chart.

Consider

- Does your data suggest a relationship between the height the blood dropped from and the droplet size?
- Does your data suggest a relationship between the height the blood dropped from and the number of satellites produced?
- Compare the 25 cm droplets to the 200 cm droplets. Can you identify visual characteristics unique to each?

For more blood spatter information and activities, visit https://forensikit.com/blood-spatter/

Procedure

1. Position a sheet of newsprint on your work surface.
2. Fill a pipette with synthetic blood.
3. Use the ruler/tape measure or protractor to measure the specified height or angle from your work surface.
4. Use the filled pipette to drop blood onto the newsprint.
   - Make sure the pipette is perpendicular to the work surface regardless of the position of your newsprint.
5. Repeat twice for a total of three drops from each height or angle.
   - Make sure the drops do not overlap.
6. Label each drop with the height or angle and 1st, 2nd or 3rd.
   - Be careful not to touch the drops when you're writing.
7. Measure each drop, and record the data in your chart.

Wondering what effect the angle that blood drops from has on the appearance of the blood droplets?

Visit https://forensikit.com/blood-spatter/ for an activity exploring angled blood drops.

Did You Know?

The average adult human has about 5 liters of blood, which is around 8% of their body weight. Actual blood volume varies depending on a person's size and age.

If a person loses 20% or more of their blood, they can experience anxiety, lethargy, confusion, elevated blood pressure, shock, and eventually, death.

The shape and size of a blood droplet is affected by the amount of blood, the height it falls from, its velocity, its angle of impact, and the characteristics of the surface it lands on.

The shape of blood droplets helps investigators determine the area of convergence.

The area of convergence combined with the angle of impact determines the area of origin, which approximates the victim's position at the time of the incident.

Bloodstain patterns are considered circumstantial evidence.

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