

The Bloodstain Pattern Analysis event tasks competitors with deciphering the origin of a simulated bloodstain. Participants will employ calculations and stringing techniques to determine direction, area of convergence, and angle of impact.

## Entry Requirements

- Teams must be composed of 3 members.
- Chapters can only register 1 teams to compete.

## Materials

Only the below materials are permitted in the competition.

- **Photo Identification** Reference [the rulebook \(https://tpsa.info/rulebook\)](https://tpsa.info/rulebook) for details
- **Gloves**
- **Pen** Blue or Black Ink
- **Dry Erase Marker**
- **Erasable marker/Cleaning Cloth or water/spray**
- **Clipboard**
- **Measuring Device** Tool for measuring distance (ex: meter stick, tape measure)
- **Angle Tool** Tool for measuring blood drops to calculate angle of impact (ex: calipers, ruler)
- **Magnifier**
- **Tape**
- **String**
- **Scissors**
- **Calculator**
- **Protractor**
- **String support pole or tripod**

## Procedures and Timeline

- **Check In (10 min Time Limit)** Competitors must check in to their event at their designated **check-in time**. Competitors that arrive **ten (10) minutes** after their designated check-in time will be marked as no-shows and not be allowed to compete out of respect for the time commitment made by our judges and volunteers.
- **Pre-Event Briefing (5 min Time Limit)** After check-in, competitors will be guided to the designated event area. Once there, the moderator will provide a comprehensive briefing, detailing the event's instructions, rules, and procedures. This briefing ensures that each competitor is well-informed and prepared for the subsequent stages of the competition.
- **Skill Assessment (30 min Time Limit)**
  1. When the moderator starts the timer and calls "Start," the team will don gloves and approach the spatter pattern.
  2. Use the spatter pattern to reconstruct the area of origin by: choosing 5 drops to analyze, determine the directionality of the selected drops, draw lines of convergence, calculate the angle of impact, calculate the area of origin, and utilize stringing to create a 3D representation of the area of origin.
  3. Upon completion, the team lead will submit their answer document to the judge.
  4. The moderator will call time when the 30-minute timer sounds. If the team has not finished, they will place their hands in the air and back away.
  5. Teams that do not finish will submit their answer document to the judge for scoring "as is."
- **Evaluation and Scoring (5 min Time Limit)** After the completion of the event, judges will convene to assess each competitor's/team's performance based on a standardized rubric. This stage is conducted without the presence of the competitors. Judges will evaluate the criteria outlined in the rubric to ensure a fair and objective scoring process. Once all assessments are finalized, scores will be recorded for each competitor/team.

## Safety Protocols

- **Respect for Safety Regulations** Competitors are expected to adhere to all general safety regulations of the venue and any additional rules provided by the moderators or judges.

- **Fingernail Length** Competitors are required to maintain short fingernails to prevent any accidental punctures to gloves.

### **Judge Qualifications**

- Experience working with blood spatter patterns and finding area of origin through trigonometric calculations.

Criteria	Unattempted	Unsatisfactory	Satisfactory	Proficient	Exemplary	Points
<b>Professionalism</b>						
<b>Dress Code</b>	<p>0</p> <p>Does not fulfill the dress code requirements.</p>		<p>10</p> <p>Fulfills the dress code requirements.</p>			<b>Opts</b>
<b>Blood Drop Selection</b>						
<b>Blood Drop Selection</b> 5 appropriate drops selected and numbered to be used for measurements and calculations	<p>0</p> <p>Selected 0 appropriate drops; no drops numbered</p>	<p>1 2</p> <p>Selected and numbered 1 or 2 appropriate drops</p>	<p>3</p> <p>Selected and numbered 3 appropriate drops</p>	<p>4</p> <p>Selected and numbered 4 appropriate drops</p>	<p>5</p> <p>Selected and numbered 5 appropriate drops</p>	<b>Opts</b>
<b>Directionality</b>						
<b>Directionality</b> Arrows drawn next to each selected drop indicating the direction the blood was traveling.	<p>0</p> <p>No arrows drawn or all are incorrect</p>	<p>2 4</p> <p>1 or 2 arrows drawn correctly</p>	<p>7</p> <p>3 arrows drawn correctly</p>	<p>8</p> <p>4 arrows drawn correctly</p>	<p>10</p> <p>All 5 arrows drawn correctly</p>	<b>Opts</b>
<b>Angle of Impact</b>						
<b>Angle of Impact</b> Angle calculations are correct within +/- 10 degrees	<p>0</p> <p>Did not attempt or correctly calculate the angle of impact for any drops</p>	<p>4 8</p> <p>Correctly calculated angle of impact for 1 or 2 drops</p>	<p>13</p> <p>Correctly calculated angle of impact for 3 drops</p>	<p>15</p> <p>Correctly calculated angle of impact for 4 drops</p>	<p>20</p> <p>Correctly calculated angle of impact for all 5 drops</p>	<b>Opts</b>
<b>Area of Convergence</b>						
<b>Area of Convergence</b> Circled, correct, and no larger than 4 inches in diameter	<p>0</p> <p>Did not circle area of convergence</p>	<p>5</p> <p>Circled an area of convergence, but more than 8 inches from the correct location</p>	<p>10</p> <p>The center of the circled area is not overlapping, but less than 8 inches from the correct location</p>	<p>15</p> <p>Circled areas overlap the correct area of convergence.</p>	<p>20</p> <p>The center of the circled correct area of convergence +/- 3 inches from the center of the actual.</p>	<b>Opts</b>
<b>Area of Origin</b>						
<b>Area of Origin</b> Use proper calculations to determine the area of origin	<p>0</p> <p>Did not attempt</p>	<p>5</p> <p>Identified area of origin that was more than 10 inches from the correct area</p>	<p>10</p> <p>Identified area of origin that was more than +/- 7 inches from the correct area</p>	<p>15</p> <p>Identified area of origin that was more than +/- 5 inches from the correct area</p>	<p>20</p> <p>Identified area of origin that was more than +/- 3 inches from the correct area</p>	<b>Opts</b>
<b>Stringing</b>						
<b>Demonstrate by Stringing</b> Create a 3D representation using a stringing method to demonstrate the calculated area of origin	<p>0</p> <p>Did not attempt stringing</p>	<p>2</p> <p>Representation matches neither calculated nor actual area of origin</p>	<p>4</p> <p>Matches the actual area of origin, but not the calculated area of origin</p>	<p>6</p> <p>Matches calculated area of origin, but not actual area of origin</p>	<p>10</p> <p>Matches calculated and actual area of origin</p>	<b>Opts</b>
<b>Gloves and Clean Up</b>						
<b>Gloves and clean up</b> Dons gloves, cleans up work area, making sure to erase all markings	<p>0</p> <p>Did not wear gloves or clean up work area</p>	<p>2</p> <p>Did not wear gloves and attempted to clean the work area, but did not clean completely</p>	<p>3</p> <p>Did not wear gloves but cleaned up the work area completely</p>	<p>4</p> <p>Did wear gloves and attempted to clean the work area, but did not clean completely</p>	<p>5</p> <p>Did wear gloves and cleaned the work area completely</p>	<b>Opts</b>

Criteria

Unattempted

Unsatisfactory

Satisfactory

Proficient

Exemplary

Points

Total Score: 0 /100 pts