

## Forensics Mystery

### With Synthetic Blood Kit

Police are called to a house where they discover a body near the back door. There is a fresh pool of blood by the victim's head. Officers question the neighbors and learn that a plumber and an electrician made service calls to the house just hours before. They are able to trace both. They recover a shirt with dark stains from the service van of the plumber and rags with similar dark stains from the electrician's van.

Your forensics lab receives the following items to test:

Sample 1: Stained cloth from the plumber's van

Sample 2: Stained cloth from the electrician's van

Sample 3: Blood collected from under the victim's head

First, test the shirt and rags to determine if the stains are caused by blood. Go to your workstation and place a drop of phenolphthalein/peroxide solution on each stain. A purple-violet color reaction indicates that blood may be present. The absence of this reaction indicates that blood is not present. Record your results.

Color reaction for Sample 1: \_\_\_\_\_

Color reaction for Sample 2: \_\_\_\_\_

Based on the results of this test, which person, the plumber or the electrician, becomes your chief suspect?

\_\_\_\_\_

When confronted, your chief suspect claims to have had a nosebleed, thus accounting for the bloodstain. Investigators have now been able to recover a blood sample (Sample 4) from the suspect's van. It is suitable for blood typing. You ask for and receive a blood sample from the suspect (Sample 5). Proceed as follows to type your three blood samples:

1. Using the dropper vial, place a drop of Sample 3 (the victim's blood) in each well of the blood typing slide. Replace the cap on the dropper vial. Always replace the cap on one vial before opening the next vial to prevent cross contamination.
2. Add a drop of synthetic anti-A (blue) to the well labeled A. Replace the cap.
3. Add a drop of synthetic anti-B serum (yellow) to the well labeled B. Replace the cap.
4. Add a drop of synthetic anti-Rh serum (clear) to the well labeled Rh. Replace the cap.
5. Using a different color mixing stick for each well (blue for anti-A, yellow for anti-B, white for anti-Rh), gently stir the synthetic blood and anti-serum drops for 30 seconds. Remember to discard each mixing stick after a single use to avoid contamination of your samples.
6. Carefully examine the thin films of liquid mixture left behind. If a film remains uniform in appearance, there is no agglutination. If the sample appears granular, agglutination has occurred. Determine the

blood type of the sample using the data table below. Answer yes or no as to whether agglutination occurred in each sample. A positive agglutination reaction indicates the blood type.

7. Record the results for the first blood sample in the data table.

**Data Table**

	Sample 3	Sample 4	Sample 5
Anti-A			
Anti-B			
Rh			
Blood Type			

Thoroughly rinse the blood typing slide, then repeat steps 1 through 7 for Samples 4 and 5, recording the results of each test as you go.

Based on your results, did the blood collected from the suspect's van come from the suspect? \_\_\_\_\_  
Could this blood have come from the victim? \_\_\_\_\_

**Carolina Biological Supply Company**

2700 York Road • Burlington, NC 27215  
800.334.5551 • www.carolina.com

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