

Team Members: \_\_\_\_\_ & \_\_\_\_\_

Team Number: \_\_\_\_\_ School: \_\_\_\_\_

**I. UNKNOWN SUBSTANCE ANALYSIS: Attempt to identify all unknowns. (20 points)**

**List of Possible Unknowns**

**Metals**

Aluminum  
Iron  
Magnesium  
Zinc

**Household Solids**

Salt (NaCl)  
Sugar  
Flour  
Plaster of Paris  
Cornstarch  
Calcium Carbonate  
Alka-Seltzer

**Household Liquids**

Sodium Acetate  
Sand  
Powdered Gelatin  
Yeast  
Vitamin C  
Baking Soda  
Lemon Juice  
Rubbing Alcohol  
Ammonia (3%)  
Water  
Vinegar  
Hydrogen Peroxide

UNKNOWN 1: \_\_\_\_\_  
\_\_\_\_\_

UNKNOWN 9: \_\_\_\_\_  
\_\_\_\_\_

UNKNOWN 2: \_\_\_\_\_

UNKNOWN 10: \_\_\_\_\_

UNKNOWN 3: \_\_\_\_\_

UNKNOWN 11: \_\_\_\_\_

UNKNOWN 4: \_\_\_\_\_

UNKNOWN 12: \_\_\_\_\_

UNKNOWN 5: \_\_\_\_\_

UNKNOWN 13: \_\_\_\_\_

UNKNOWN 6: \_\_\_\_\_

UNKNOWN 14: \_\_\_\_\_

UNKNOWN 7: \_\_\_\_\_

UNKNOWN 15: \_\_\_\_\_

UNKNOWN 8: \_\_\_\_\_  
\_\_\_\_\_

UNKNOWN 16: \_\_\_\_\_  
\_\_\_\_\_

**Note:** Unknowns 1, 8, 9, and 16 are mixtures. Unknowns 1, 7, 12, and 16 were found at the crime scene.

**II. HAIR ANALYSIS: Identify the type of hair at the crime scenes. (2 points)**

Possible Hair samples: Human, Dog, Cat

Slide A: \_\_\_\_\_

Slide B: \_\_\_\_\_

**III. SHOE PRINT ANALYSIS: (2 points)**

Whose shoes made the prints found at the crime scenes?

Evidence A: \_\_\_\_\_ Evidence B: \_\_\_\_\_

**IV. FINGERPRINT ANALYSIS: (2 points)**

Whose fingerprints were found on the cabinet?

Evidence A: \_\_\_\_\_ Evidence B: \_\_\_\_\_

**V. DNA ANALYSIS:**

Whose DNA matches blood found at the crime scene?

Evidence A: \_\_\_\_\_ Evidence B: \_\_\_\_\_

**VI. CHROMATOGRAPHY:**

Whose pen was used to write the note? \_\_\_\_\_

**TAPE YOUR CHROMATOGRAM STRIPS IN THE SPACE BELOW.**

**VII. WRITTEN ANALYSIS:**

Based on the evidence you collected, identify the perpetrator of the crime and explain how you came to that conclusion.

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[If you require more space, you may continue your explanation on the reverse side of this paper.]