Blood cells and Blood Typing Lab

Part A of this lab will involve preparing a slide of blood from a patient. You will then use a microscope to find red and white blood cells and use mathematics to estimate the number of cells the patient has.

Part B of this lab requires you to determine the blood type of four suspects and a victim.

<u>Materials</u>

You write

Procedure Part A

- 1. Choose one patient (the names are on the bottle of blood). Shake the bottle well to get the blood cells off the bottom.
- 2. Add one drop of blood to a clean slide
- 3. Add a cover slip
- 4. Using a microscope, search for red blood cells (pink). Sketch these cells.
- 5. Count the number of red blood cells you see in your field of few and record this number in the table. Move the slide until you find more red blood cells and again count the number of cells you see in your field of view. Repeat a 3rd time for a total of 3 cell counts.
- 6. Repeat steps 4 and 5 with the white blood cells (blue). Record your 3 cell counts in the table.
- 7. Use mathematics to determine the total number of blood cells per mm³

Procedure Part B

- Do all blood tests in the plastic wells
- 1. Choose one person (suspect 1) to test. Place 3 drops of blood in all 3 parts of the well plate
- 2. Add to the "A" section 2-3 drops of anti A
- 3. Add to the "B" section 2-3 drops of anti B
- 4. Add to the "Rh" section, 2-3 drops of Anti-Rh
- 5. Use a toothpick to stir each mixture but do NOT contaminate your samples.
- 6. Observe whether or not agglutination (clumping) occurs and record the information on your data sheet
- 7. Move around the room repeating steps 1-6 for all four suspects, the crime scene and the victim
- 8. Record the blood type of each individual

<u>Calculations and Data</u> Analysis sheet provided

Conclusions and Questions:

1. What are the main functions of red blood cells and white blood cells?

- 2. What are the scientific names of red and white blood cells?
- 3. Humans should have an average of 5 million RBC's per mm³. How does this compare with your patient?
- 4. A low RBC count can cause Anemia. What is anemia? List at least 3 symptoms.
- 5. The WBC count should range from 5-10,000 mm³. What kinds of diseases or conditions are associated with a high WBC count? A low WBC count?
- 6. Why is it necessary to determine the blood type of the victim?
- 7. Which suspect would you bring in for additional questioning? Does this test prove they committed the crime? Explain.
- 8. For suspect #2:

a. What antigens are on their RBC's? b. What antibodies are in their blood serum? c. If they needed a blood transfusion, which blood types could they receive?

9. Which blood type is known as the "universal donor" and why is this the case?

<u>Final Summary</u> – make sure you discuss the major concepts and vocabulary associated with this lab.

Calculations and Data Blood lab

Part A

RBC sketches

WBC sketches



Cell counts								
Blood cell type	1	2	3	Total # of cells	Average # of cells	Multiply by dilution	blood	
						Factor below		
Red						150,000		
White						5,000		

Part B

Blood source	Anti A serum	Anti B serum	Anti Rh serum	Blood type
Crime scene				
Victim				
Suspect 1				
Suspect 2				
Suspect 3				
Suspect 4				