

# Blood Lab

Dr. J. Lim

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## Formed Elements in Blood

### Red Blood Cells (erythrocytes)


 4 million–6 million per mm<sup>3</sup> blood

### White Blood Cells (leukocytes)


#### Granular leukocytes

 20–50 per mm<sup>3</sup> blood

- Basophil


 100–400 per mm<sup>3</sup> blood

- Eosinophil


 3,000–7,000 per mm<sup>3</sup> blood

- Neutrophil

#### Agranular leukocytes

 1,500–3,000 per mm<sup>3</sup> blood

- Lymphocyte

 100–700 per mm<sup>3</sup> blood

- Monocyte

### Platelets (thrombocytes)

 150,000–300,000 per mm<sup>3</sup> blood

- Wright's Blood Smear glass microscope slide
  - Which type of blood cell is most numerous on the slide? \_\_\_\_\_
  - Draw any WBCs and attempt to identify them
  
  - Is a RBC a deeper pink color in its center or edge? Why?
- Red Blood Cell (RBC) model
  - Describe the physical appearance of a RBC \_\_\_\_\_
  - Is a RBC encased by a plasma membrane? Yes/No
  - Does a RBC contain mitochondria and Golgi? Yes/No
- Viewmaster Set 95 Human Blood  
Examine the blood cells in this exercise. Drawing optional.
  1. Note the various formed elements
    - Pt platelets
    - R red blood cells
    - Po neutrophils (leukocyte/WBC)
    - L lymphocyte (leukocyte/WBC)
    - Pl plasma
  2. Red Corpuscles (3000X) A great view of red blood cells
  3. White Corpuscles
    - Note: E eosinophils
    - B basophils
    - M monocytes

4. Phagocytosis  
Cell eating in action
5. SKIP
6. Fibrin – washed clot
7. Sickle cells  
Note the sickle shape caused by bad hemoglobin combined with stress
8. Infected Blood

### **ABO and Rh Blood Typing using Artificial Blood**

Form groups of at least four students and secure the following materials:

- 4 blood typing slides, 8-12 toothpicks & grease pencil/Sharpie

*Each team will now determine the blood type of each of the four unknown blood samples*

**Procedure:**

1. Pre-label each blood typing slide as follows with the provided grease pencil  
 Slide #1 Mr. Smith                      Slide #3 Mr. Green  
 Slide #2 Ms. Jones                      Slide #4 Ms. Brown
2. To avoid contamination, do not touch the bottle tips to anything
3. Place 3 drops of Mrs. Smith’s blood in each of the A, B and Rh wells in Slide #1.
4. Place 3 drops of Ms. Jones’s blood in each of the A, B and Rh wells in Slide #2.
5. Place 3 drops of Mr. Green’s blood in each of the A, B and Rh wells in Slide #3.
6. Place 3 drops of Ms. Brown’s blood in each of the A, B and Rh wells in Slide #4.
7. Place 3 drops of simulated anti-A serum in each A well on the four slides.
8. Place 3 drops of simulated anti-B serum in each B well on the four slides.
9. Place 3 drops of simulated anti-Rh serum in each Rh well on the four slides.
10. Use clean toothpicks to stir each well of serum/blood.
11. Record your observations into the grid below

**Results:** use + to denote a positive reaction and – to denote a negative reaction

	<b>Anti-A Serum</b>	<b>Anti-B Serum</b>	<b>Anti-Rh Serum</b>	<b>Blood Type</b>
#1 Mr. Smith				
#2 Ms. Jones				
#3 Mr. Green				
#4 Ms. Brown				

12. Dispose of all used lab materials into the trash

**Questions:**

1. If Ms. Jones needed a transfusion, what ABO type(s) (ignore Rh factor) of blood could she safely receive? \_\_\_\_\_
2. If Ms. Brown were serving as a donor, what ABO types(s) (ignore Rh factor) could receive her blood safely? \_\_\_\_\_