Blood Lab
Dr. J. Lim

Formed Elements in Blood

Red Blood Cells (erythrocytes)
- 4 million–6 million per mm³ blood

White Blood Cells (leukocytes)

Granular leukocytes
- 20–50 per mm³ blood
  - Basophil
- 100–400 per mm³ blood
  - Eosinophil
- 3,000–7,000 per mm³ blood
  - Neutrophil

Agranular leukocytes
- 1,500–3,000 per mm³ blood
  - Lymphocyte
- 100–700 per mm³ blood
  - Monocyte

Platelets (thrombocytes)
- 150,000–300,000 per mm³ blood

• Wright’s Blood Smear glass microscope slide
  o Which type of blood cell is most numerous on the slide? ______________
  o Draw any WBCs and attempt to identify them
  o Is a RBC a deeper pink color in its center or edge? Why?

• Red Blood Cell (RBC) model
  o Describe the physical appearance of a RBC _________________
  o Is a RBC encased by a plasma membrane? Yes/No
  o 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)
   PI 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 #2  Ms. Jones  
   Slide #3  Mr. Green  
   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

<table>
<thead>
<tr>
<th></th>
<th>Anti-A Serum</th>
<th>Anti-B Serum</th>
<th>Anti-Rh Serum</th>
<th>Blood Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1 Mr. Smith</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>#2 Ms. Jones</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>#3 Mr. Green</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>#4 Ms. Brown</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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? ______________________