HEMATOLOGIC TESTS

ACTIVITY 1

SIMULATED ABO AND RH BLOOD TYPING KIT

STUDENT STUDY AND ANALYSIS SHEET

Student note: This alternative blood typing activity does NOT use real blood or blood sera. You will follow the exact procedure used to type actual human blood and obtain results that closely approximate real blood typing.

ABO and Rh Blood Typing

OBJECTIVES:
1. To determine the ABO blood type of four unknown simulated blood samples.
2. To determine the Rh of four unknown simulated blood samples.

PERFORMING THE EXPERIMENT:

Materials: (per team of two students)
4 blood typing slides
8 toothpicks

Shared Materials:
4 unknown simulated blood samples
1. Mr. Smith
2. Ms. Jones
3. Mr. Green
4. Ms. Brown

Anti-A simulated typing serum
Anti-B simulated typing serum
Anti-Rh simulated typing serum

Procedure:
Each team will determine the blood type of each of the four unknown blood samples.

1. Pre-label each of your four blood typing slides as follows:
   Slide #1: Mr. Smith
   Slide #2: Ms. Jones
   Slide #3: Mr. Green
   Slide #4: Ms. Brown
Slide #4: Ms. Brown
2. Place 3-4 drops of Mr. Smith’s blood in each of the A, B, and Rh₀ wells of slide #1.
3. Place 3-4 drops of Ms. Jones’ blood in each of the A, B, and Rh₀ wells of slide #2.
4. Place 3-4 drops of Mr. Green’s blood in each of the A, B, and Rh₀ wells of slide #3.
5. Place 3-4 drops of Ms. Brown’s blood in each of the A, B, and Rh₀ wells of slide #4.
6. Add 3-4 drops of the simulated anti-A serum in each A well on the four slides.
7. Add 3-4 drops of the simulated anti-B serum in each B well on the four slides.
8. Add 3-4 drops of the simulated anti-Rh₀ serum in each Rh₀ well on the four slides.
9. Use separate toothpicks to stir each sample of serum and blood. Record your observations and results in the table below.

DATA TABLE 1
Agglutination Reactions

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

Note: A positive test is indicated by a strong agglutination reaction. See Table 2 for aid in interpreting the test results.
ACTIVITY 2

HEMATOCRIT

Animal blood used for the hematocrit: ____________________________

Hematocrit found: ____________________________

Normal human hematocrit range: ____________________________

ACTIVITY 3

SLIDE PREPARATION

First jar: Light blue alcohol
Second jar: eosin stain
Third jar: methylene blue
Fourth jar: distilled water

Describe the steps for a slide preparation. Start at the very beginning with dropping the blood on the slide.
## INSTRUCTOR’S KEY

**Agglutination Reactions**

<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>Slide #1: Mr. Smith</td>
<td>Agglutination</td>
<td>No agglutination</td>
<td>Agglutination</td>
<td>A, Rh+</td>
</tr>
<tr>
<td>Slide #2: Ms. Jones</td>
<td>No agglutination</td>
<td>Agglutination</td>
<td>No agglutination</td>
<td>B, Rh-</td>
</tr>
<tr>
<td>Slide #3: Mr. Green</td>
<td>Agglutination</td>
<td>Agglutination</td>
<td>Agglutination</td>
<td>AB, Rh+</td>
</tr>
<tr>
<td>Slide #4: Ms. Brown</td>
<td>No agglutination</td>
<td>No agglutination</td>
<td>No agglutination</td>
<td>O, Rh-</td>
</tr>
</tbody>
</table>