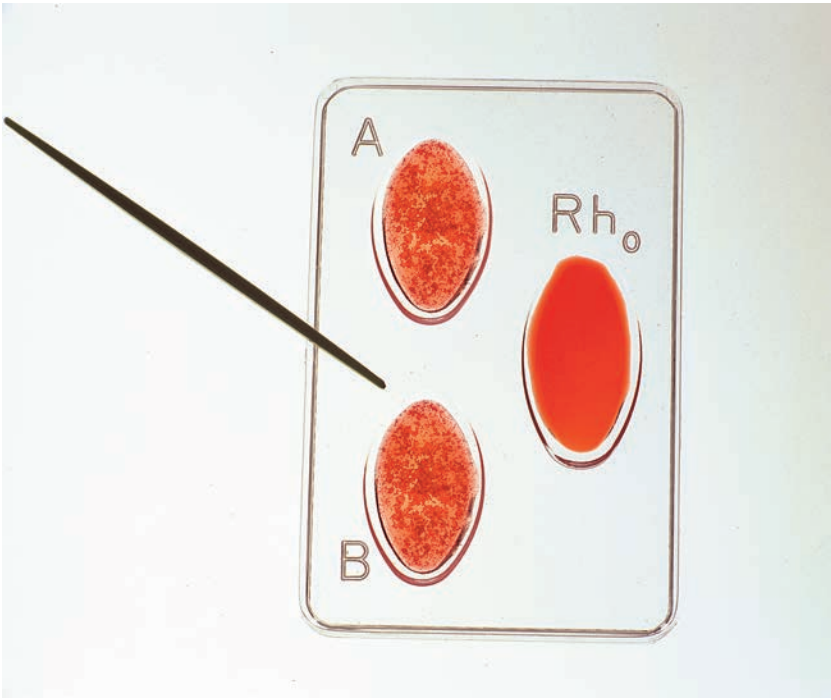
70-0101

ABO-Rh Blood Typing With Synthetic Blood

Teacher's Manual



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The ability to type blood is an invaluable tool in the fields of medicine and criminology. Using this kit, students test four simulated blood samples to identify their ABO and Rh blood types. While the test procedures used in this kit are those used to test real blood, this kit contains synthetic blood and synthetic antisera. This eliminates any risk associated with exposure to actual blood or blood products. The materials in this kit may be discarded after use. There are no biological materials in the synthetic blood or synthetic antisera that would cause any health hazard when discarded.

Materials

Included in the kit

30 blood typing slides
synthetic blood
synthetic anti-Rh (D) serum
synthetic anti-A serum
synthetic anti-B serum
mixing sticks (blue, yellow, and white)
30 Student Instructions

Objectives

- Perform standard tests used for blood type identification
- Understand the importance of blood type identification and its uses
- Learn about the form and function of blood components

National Science Standards

This kit can be used to address the following National Science Education Content Standards:

- Abilities necessary to do scientific inquiry
- Understanding about scientific inquiry
- Structure and function in living systems
- Understanding of the cell
- Matter, energy, and organization in living systems

Preparation

Set up a workstation where students can obtain the synthetic blood and synthetic anti-serum samples they will need to complete this activity. Review the designations of the blood groups (A+, A–, etc.) and their agglutination reactions before beginning the lab. Each student will need a copy of the student instructions and a blood typing slide. Have the students go to the workstation and follow the instructions to test each synthetic blood.

Final Activities

After the tests of all four blood types have been completed and the results recorded, students should clean their blood typing slides. Be certain that all mixing sticks have been discarded.

Have the students compare their results. If a student has a result that differs from that obtained by the rest of the class, discuss what may have happened, such as

- contamination of sample
- sample not sufficiently mixed
- not enough time to view the reaction
- wrong anti-serum in the well
- wrong blood sample in the well

Sample Questions for Assessment

The questions that follow can be used to check for student understanding of the ABO and Rh blood groups and their importance. The answer to each question is in italics.

1. Given the antigen(s) found on the red blood cells, give the corresponding blood antibody and the ABO blood type.

Blood Type	Red Cell Antigen	Antibody in Blood Plasma
A	A	*Anti-B*
B	B	*Anti-A*
AB	AB	*Neither*
O	Neither	*Anti-A, Anti-B*