

BLOOD TYPING LAB



Background Info: People can have one of four types of blood: A, B, AB, or O. A blood type is based on the presence or absence of two protein based **antigens** (A & B) on the surface of the red blood cells. Because there are two proteins involved, there are four possible combinations or blood types (ABO groups):

- Type A – Only the A protein is present.
- Type B – Only the B protein is present.
- Type AB – Both the A and B proteins are present.
- Type O – Neither protein is present.

When someone takes the blood of another person (during surgery, or after an accident) it is called a **transfusion**. If two incompatible blood types are mixed together during a transfusion **agglutination** of the blood cells may occur. This means, the antibodies from the immune system cause the “foreign” red blood cells to clump together which can block the capillaries, possibly causing death. If you ever receive a transfusion, your blood type will be checked first. Then, donated blood that you can safely receive will be found. This process is called cross matching. Today, you will be testing simulated blood to determine which blood types are compatible.

Materials: 4 plastic cups (A- Yellow; B- Blue; AB- Green; O-Clear). 1 eye dropper. 1 small class beaker. 1 plastic container for waste.

Procedure: For this lab, the glass beaker acts as the “patient” and the fluid in the plastic cups acts as “donated blood.” To determine which transfusions are safe for your patient and which are not, think of the different blood types as different colors.

- If a color can receive another color without a color change, it is a safe transfusion.
 - If a color changes when you add the other color to it, it is an unsafe transfusion.
 - Make sure to look for a color change, not just the color getting lighter or darker.
1. Use your eye dropper to add a small amount of **TYPE A** blood to the beaker. This represents the blood type of the patient.
 2. Use the eye dropper to add a small amount of **TYPE A** blood to the blood already in the beaker. This represents a transfusion in which the patient receives **TYPE A** blood.
 3. Notice the results and record the transfusion as “Safe” or “Unsafe” based on your observations. Remember, a color change indicates that the transfusion failed (In a real blood transfusion, this failure would be evidenced by agglutination of the red blood cells).
 4. Empty the patient beaker into the plastic waste container.
 5. Repeat steps 1-4 for all combinations: A:A, A:B, A:AB, A:O, B:B,B:AB, B:O, AB:AB, AB:O, O:O

Results: Safety of Transfusions

Blood Type	Donor TYPE A	Donor TYPE B	Donor TYPE AB	Donor TYPE O
Patient TYPE A	1.	2.	3.	4.
Patient TYPE B	5.	6.	7.	8.
Patient TYPE AB	9.	10.	11.	12.
Patient TYPE O	13.	14.	15.	16.

Analyzing Your Findings

17. What blood types can Type A blood:

a. Receive? _____

b. Donate to? _____

18. What blood types can Type B blood:

a. Receive? _____

b. Donate to? _____

19. What blood types can Type O blood:

a. Receive? _____

b. Donate to? _____

20. What blood types can Type AB blood:

a. Receive? _____

b. Donate to? _____

21. Which blood type can give to ALL other blood types and is known as the UNIVERSAL DONOR? _____

22. Which blood type can receive blood from all other blood types and is known as the UNIVERSAL RECIPIENT? _____

23. What are the 4 parts of blood? _____

25. Which of these 4 parts determine a person's blood type?

