Name: _____

ABO Blood Typing Lab

Background:
There are four types that we have learned about; Types A, B, AB, and O. Blood types are determined by the presence or absence of antigens on the surface of red blood cells. Use your knowledge of ABO blood typing to identify the blood types of your patients. Refer back to your notes if needed. If agglutination (clumping) occurs, then you know that the antibody has bound to its matching antigen.

Objectives:
- Perform actual blood typing procedure
- Observe the antigen/antibody reaction in simulated blood
- Determine the ABO blood type of four unknown samples

Materials:
4 sample plates
8 toothpicks
Anti-A antibody serum (BLUE)
Anti-B antibody serum (YELLOW)
4 synthetic blood samples (Mr. Smith, Mr. Jones, Mr. Green, Ms. Brown)

Pre-lab Questions:
Complete the chart below with information about the 4 blood types. This information will help you during the lab procedure.

Blood Type	Antigen on RBC	Antibody in Blood Plasma	Expected Clumping with Anti-A?	Expected Clumping with Anti-B?
A				
B				
AB				
O				

Procedure:

1. Place 4 sample plates on a sheet of paper. Label each plate by writing the name of the blood sample below the plate on the sheet of paper (ex. Mr. Smith).

2. Using the correct dropper, place 3-4 drops of Mr. Smith's blood in each of the A and B wells of sample plate #1.

3. Using the correct dropper, place 3-4 drops of Mr. Jones's blood in each of the A and B wells of sample plate #2.

4. Using the correct dropper, place 3-4 drops of Mr. Green's blood in each of the A and B wells of sample plate #3.

5. Using the correct dropper, place 3-4 drops of Ms. Brown's blood in each of the A and B wells of sample plate #4.

6. Place 3-4 drops of the Anti-A serum in each well A on the four plates.

7. Place 3-4 drops of the Anti-B serum in each well B on the four plates.

8. Obtain 2 toothpicks for each of the 4 sample plates. Stir each well with a separate clean toothpick for 30 seconds. Do not stir too hard, to avoid splattering.

9. Observe each plate for agglutination (clumping) and record your observations in the data table below.

10. Wash off the sample plates thoroughly and dispose of all other materials.

Data Table:

	Mr. Smith	**Mr. Jones**	**Mr. Green**	**Ms. Brown**
Anti-A				
Anti-B				
Blood Type				

Conclusion Questions:
(Recall that there is another antigen called Rh for which you can be positive (+) or negative (-) for.)

1. Late Saturday night, someone broke a window in the back of a store and robs the safe. On the way out, the thief cut himself on a piece of broken glass. You are a forensic detective called to the scene. You test a sample of blood left behind by the thief. It is type O-. While you are there, police bring in a suspect with a cut forearm. You take a sample of the suspect's blood and mix it with Anti-A. You immediately determine that the suspect is not the person who cut himself on the broken glass in the store. How do you know this?

2. Suppose the suspect's blood does not agglutinate when tested with Anti-A or Anti-B, but does agglutinate when tested with Anti-Rh. Would this connect the suspect with the crime scene? Explain your answer.

3. John has just been brought to the hospital after a car crash from which he suffered blood loss. He is in need of a blood transfusion. After a few tests, it is determined that John has type A+ blood. His wife Jane rushed to the hospital hoping that she could donate blood for her husband. Jane's blood gets tested to determine her blood type. The results of Jane's test are listed below:

Anti-A	**Anti-B**	**Anti-Rh**
Agglutination	Agglutination	Agglutination

What type of blood does Jane have? Can she donate blood for John's transfusion? Explain.