Name: _____ Date: _____ Block: _____

BIOLOGY 621 | *Online Human Blood Type Simulation*

Directions:

1. Open the internet on the computer (Firefox, Safari, or Explorer)
2. Go To: **http://nobelprize.org/educational_games/medicine/landsteiner/**
3. Click on the Reading section: "Blood groups, Blood Typing and Blood Transfusions"
4. Read and Answer the Pre-lab Questions.

Pre-lab Questions:

1. Who was the person who discovered the human blood types?

2. What is agglutination?

3. An adult human has how many liters of blood?

4. What are the four main things that make up human blood?

5. Where are antigens located in the blood?

6. Where are antibodies located in the blood?

7. According to the ABO blood group system, what are the four main blood types?

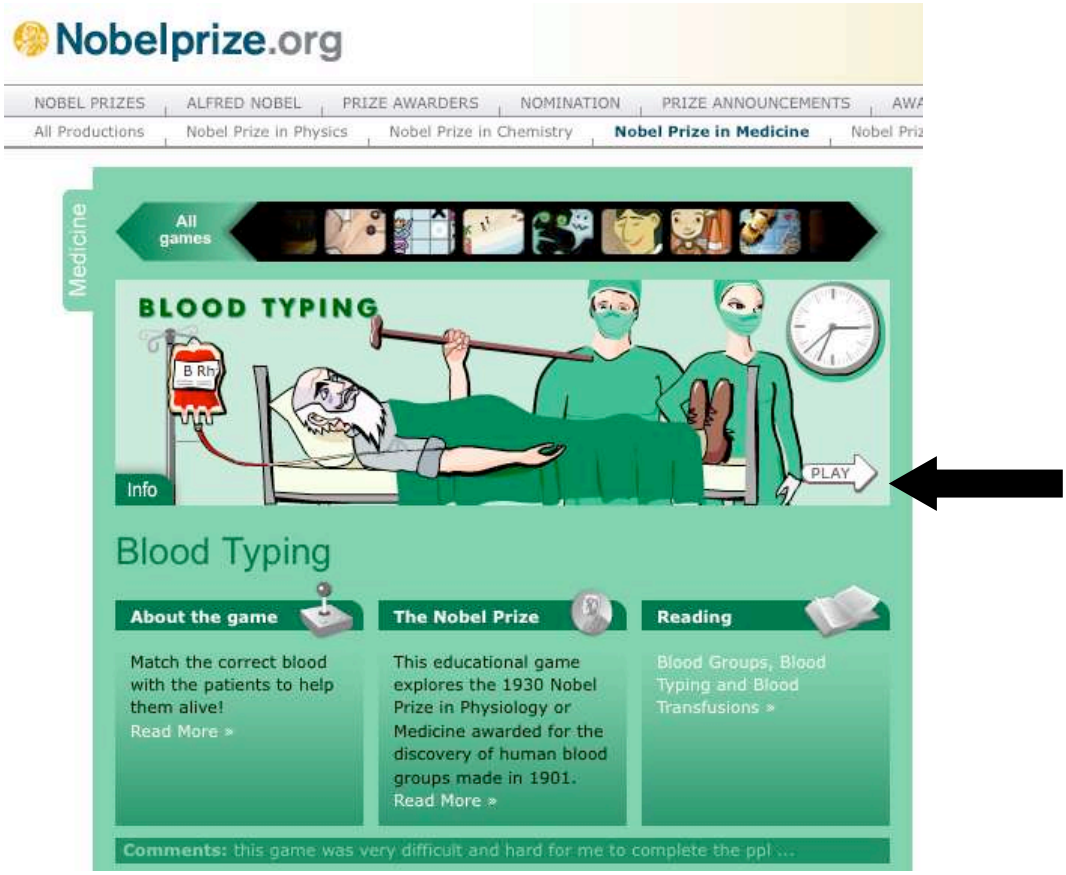
8. Who can a person with Rh^+ blood give to?

9. What two things can happen when agglutination does occur in a person?

10. What blood group is the universal donor?

11. What blood group is the universal recipient?

12. Click the “Back” button at the top to go back to the homepage.
13. Click on “Play” in the picture to begin the blood type game.



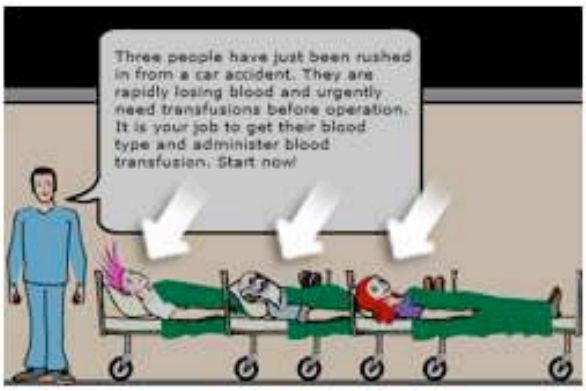
14. Then click on “Skip intro” (it does not work well)
15. Read the instructions on the following pages to learn how to play the game, then fill in the chart below for each patient.

Patient	Patients Blood Type	What blood can the patient receive as a transfusion successfully?
Red-haired Girl		
Punk Rocker		
Old Guy		

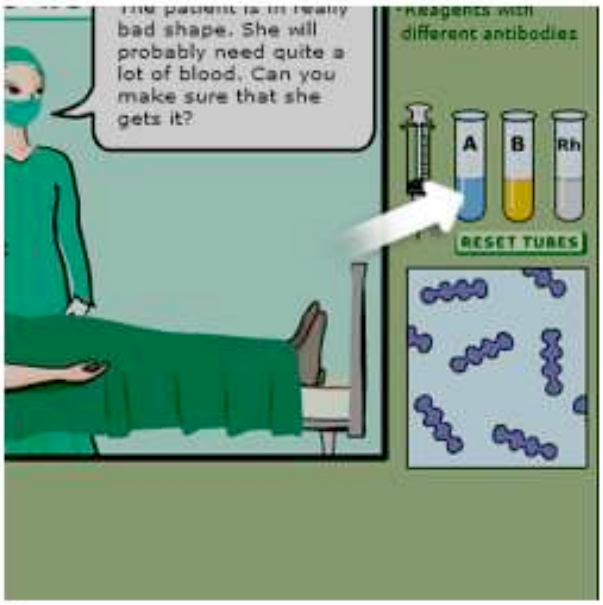
The Blood Typing Game - Help

Aim of the game:

Your challenge is to save three patients who have been in a car accident and need blood transfusions. It is your job to blood type each patient and give them the correct blood. Each patient has a "health meter" displayed on the left-hand side of the screen that monitors their condition. Try to avoid making mistakes or the patient's condition will deteriorate! If you make no mistakes you will get all five out of five blood drops in the end.



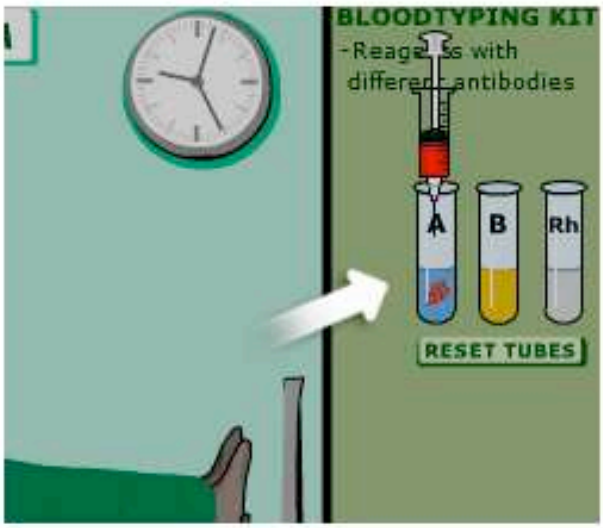
1.
To start the blood typing procedure, click on one of the three patients.



2.
Move the mouse cursor across the test tubes in the "blood typing kit" to take a closer look at their contents.
Test tube A contains A antibodies; test tube B contains B antibodies; test tube Rh contains Rh antibodies.

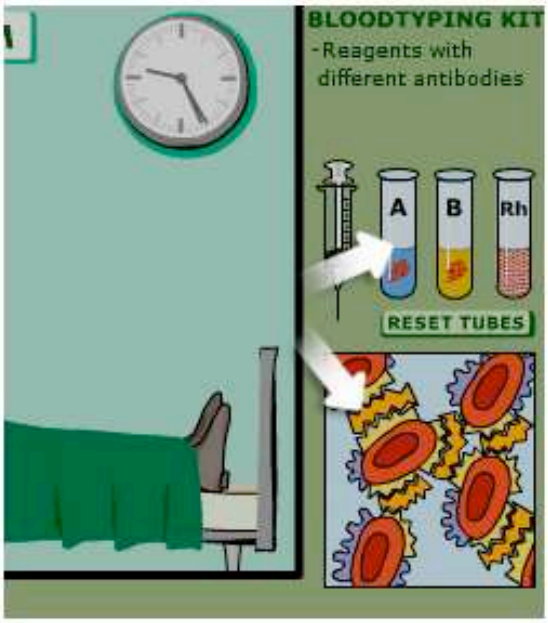
3.

To take the patient's blood, select the syringe using the mouse cursor and drop it on the patient's arm. The syringe will now be filled with blood.



4.

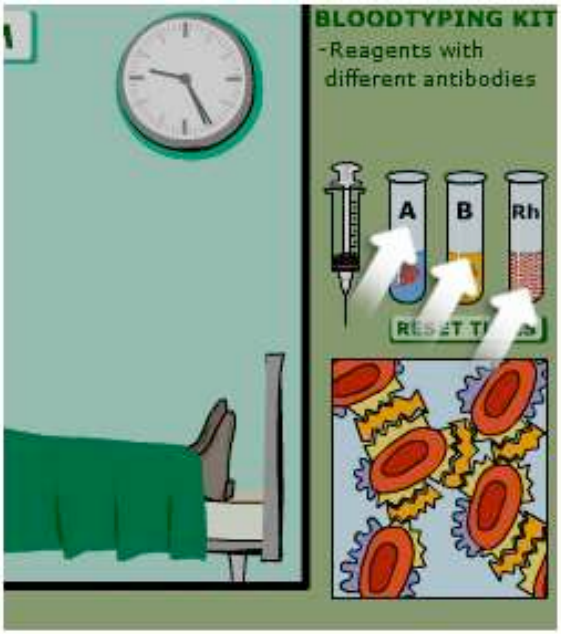
Drag the syringe back to the test tubes in the blood typing kit and fill the three test tubes with blood by dropping the syringe on each tube.



5.

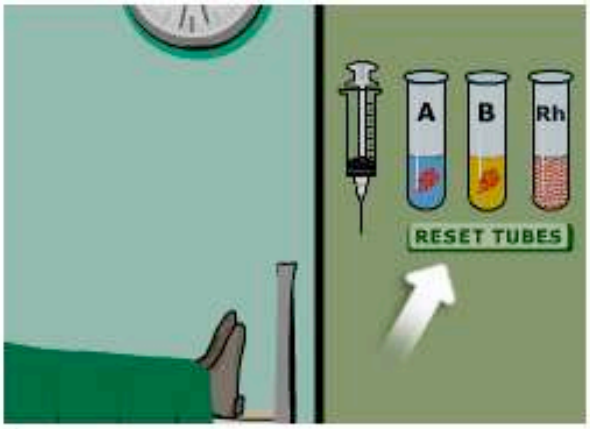
The blood will clot in the test tubes if the antigens in the patient's blood match the antibodies in the test tube. In this example, the blood has clotted in the test tubes marked A and B, but not in the Rh test tube. This indicates that the patient's blood contains both A and B antigens, but no Rh antigens. The patient belongs to blood group AB Rh- ("AB Rh minus").

If the blood had clotted in the Rh test tube as well, the patient would have belonged to blood group AB Rh+ ("AB Rh plus").



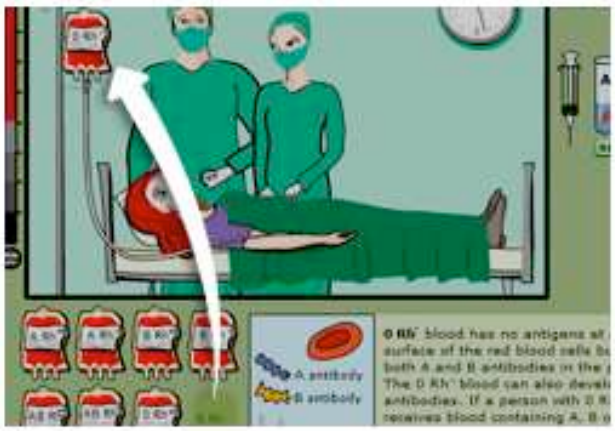
6.

Move the mouse cursor across the tubes if you want to take a closer look at what has happened in the test tubes.

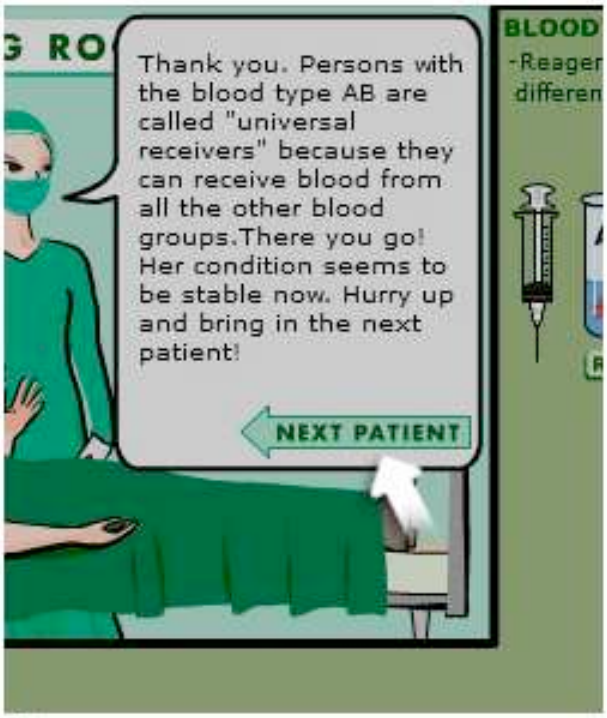


7.
To start again, click on "reset tubes".

8.
Move the mouse cursor across the blood bags at the bottom of the screen to learn what the different blood groups consist of. The blood bags show the antigens found in a particular blood type.

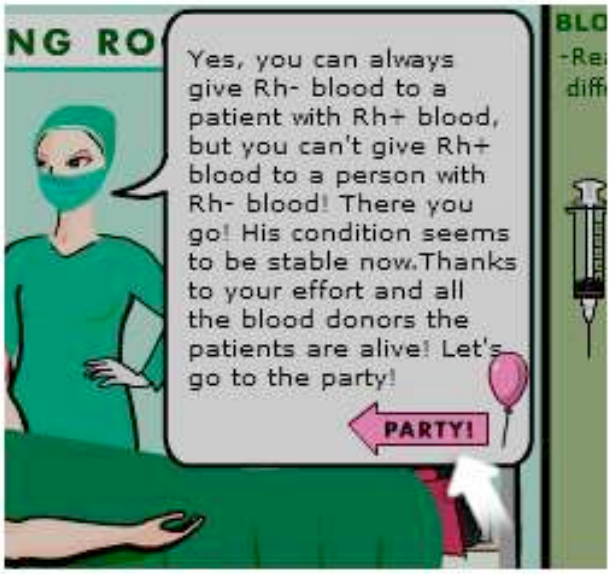


9.
Give the patient a blood transfusion by selecting one of the blood bags with the mouse cursor and dropping it on top of the blood bag rack.



10.

When the patient has received enough blood, bring in the next patient by clicking on the "next patient" sign in the speech bubble.



11.

When all three patients have received their blood transfusions, click on the "party" sign in the speech bubble for evaluation.