Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Switched at Birth**

*There has been a mix-up at the hospital and four newborn babies have “lost” their parents. Perform a simple blood test to match the unknown baby with their correct biological parents.*



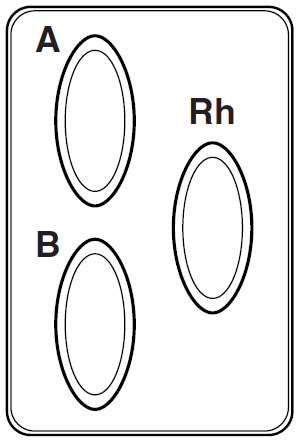
**How to Perform a Blood-Typing Test:**

*Step 1:* Apply one drop of each unknown blood type into each of the 3 wells.

*Step 2:* Add one drop of each of the anti-serums to each of the corresponding wells.

*Step 3:* View over white paper background.

1. Record the results of what you observe in the data table below:



**\* \* \* Mark each box with a (+) if positive for clumping after sera are addded \* \* \***

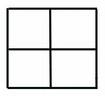
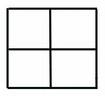
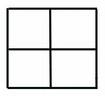
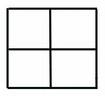
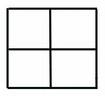
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Anti-A Sera** | **Anti-B Sera** | **Anti-Rh Sera** | **Blood Type** |
| **Baby W** |  |  |  |  |
| **Baby X** |  |  |  |  |
| **Baby Y** |  |  |  |  |
| **Baby Z** |  |  |  |  |

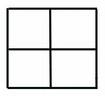
2. Complete the punnett squares indicating the possible genotypes of the offspring of each couple below then match each baby with the correct couple. THIS IS FOR ABO BLOOD TYPING ONLY!

*Hint: There are two punnett squares so that you can cross the homozygous and heterozygous genotypes that may result in either A or B type blood.*

Couple #1: Couple #2: Couple #3: Couple #4:

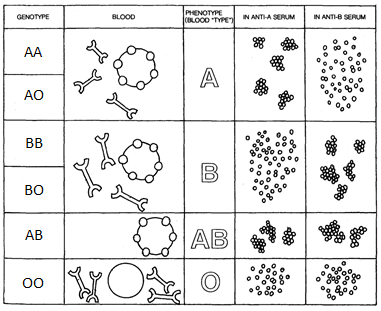
O and AB AB and B O and O O and A





Baby: \_\_\_\_\_ Baby: \_\_\_\_\_ Baby: \_\_\_\_\_ Baby: \_\_\_\_\_

CHECKPOINT! Get your teacher’s initials here before moving on: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



3. Complete the following analysis table below:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **ABO Blood Type** | **Genotype** | **Antigens present on blood cells** | **Antibodies present in plasma** | **1 parent able to donate blood (yes or no?)** |
| Baby W |  |  |  |  |  |
| Baby X |  |  |  |  |  |
| Baby Y |  |  |  |  |  |
| Baby Z |  |  |  |  |  |

4. When we are comparing 2 different traits, we can use 2 crosses to determine the possible outcomes. Rh factor is another trait involved in blood type. + (positive) is completely dominant to – (negative). Cross a father who is heterozygous for blood type A and also heterozygous for a + Rh factor with a mother who has O- blood. Multiply the probabilities for each outcome to fill the boxes below:

A O

**Parental Genotypes**

Male \_\_\_\_\_\_\_\_ Female \_\_\_\_\_\_\_\_

|  |  |
| --- | --- |
|  |  |
|  |  |

O

O

**Possible Phenotypes**

\_\_\_\_\_ A+ \_\_\_\_\_ AB+

\_\_\_\_\_ A- \_\_\_\_\_ AB-

\_\_\_\_\_ B+ \_\_\_\_\_ O+

\_\_\_\_\_ B- \_\_\_\_\_ O-

|  |  |
| --- | --- |
|  |  |
|  |  |

**+ -**

**- -**