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

**Blood Lab**

Add your own surface proteins to the different blood cells below:

|  |  |  |  |
| --- | --- | --- | --- |
| A | B | AB | O |
|  |  |  |  |

What are the possible genotypes for each type of blood?

|  |  |
| --- | --- |
| Blood Type | Possible Genotypes |
| A |  |
| B |  |
| AB |  |
| O |  |

**Materials:**

20 mL red water

20 mL green water

20 mL clear water

5 test tubes + rack

**Key:**

A = red water

B = green water

AB = (red+green) brown water

O = clear water

**Procedure:**

1. Add 20ml of each type of blood into 4 different test tubes. Keep one tube empty to be your “test” tube.
2. Add 5mL of type A blood to the test tube. Then add 5 more drops of type A blood to the tube and look for a change of color. Look for a color change or the water getting significantly darker. Record your results in the data table. Since red + red = red, you can record this as safe.
3. Add 5 drops of type B blood to the type A blood in the test tube. If there is a color change, record this as unsafe.
4. Empty the test tube and start over with 5mL of type A blood
   1. WHENEVER THERE IS COLOR CHANGE, EMPTY OUT THE TEST TUBE.
5. Repeat this process to combine type A blood with every single other type of blood.
   1. WHENEVER THERE IS COLOR CHANGE, EMPTY OUT THE TEST TUBE.
6. Repeat this process to combine types B, AB and O with every other type of blood as well.
   1. WHENEVER THERE IS COLOR CHANGE, EMPTY OUT THE TEST TUBE.

|  |  |
| --- | --- |
| Type A Blood Recipient | Safe or Unsafe? |
| Type A |  |
| Type B |  |
| Type AB |  |
| Type O |  |

|  |  |
| --- | --- |
| Type B Blood Recipient | Safe or Unsafe? |
| Type A |  |
| Type B |  |
| Type AB |  |
| Type O |  |

|  |  |
| --- | --- |
| Type AB Blood Recipient | Safe or Unsafe? |
| Type A |  |
| Type B |  |
| Type AB |  |
| Type O |  |

|  |  |
| --- | --- |
| Type O Blood Recipient | Safe or Unsafe? |
| Type A |  |
| Type B |  |
| Type AB |  |
| Type O |  |

Summarize your data in the table below:

|  |  |  |
| --- | --- | --- |
| Blood Type | You can receive from: | You can donate to: |
| A |  |  |
| B |  |  |
| AB |  |  |
| O |  |  |

**Questions:**

1. Which genes are dominant? Which are recessive? Which are codominant?
2. Draw a Punnett square to show the possible offspring of two heterozygotes – one with A blood, and the other with B blood.
3. What would happen if a person with O blood was transfused with B blood?

|  |  |
| --- | --- |
| Blood Types of Parents | Possible Blood Types of Children |
| AB and O |  |
| Heterozygous B and O |  |
| Heterozygous A and Homozygous B |  |