Your blood type is established before you are **BORN**, by specific \_\_\_\_\_\_\_\_\_\_ inherited from your parents. You inherit one gene from your \_\_\_\_\_\_\_ and one gene from your \_\_\_\_\_\_\_\_\_. These genes determine your blood type by causing proteins called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to exist on the surface of all of your red blood cells.

**Multiple Alleles** – having 3 or more alleles for the same gene in a population, HOWEVER any given individual can have only \_\_\_\_\_\_ of these alleles; Ex: coat color in rabbits and A, B, AB, O blood types

There are \_\_\_\_\_ alleles of the gene that control blood type: IA, IB, i. The “I” stands for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, or the type of white blood cell that would be triggered to attack. IA and IB are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ genes, meaning when inherited together, they are both fully expressed, not blended, as in Incomplete Dominance. “ i ” is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ form of the allele. Type O blood is a recessive trait, therefore \_\_\_\_\_\_\_\_ recessive genes must be inherited to have the O blood type.



|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| GENOTYPE | IAIA or IAi(AA or AO) | IBIB or IBi(BB or BO) | IAIB(AB) | ii(OO) |
| CAN DONATE BLOOD TO | A, AB | B, AB | AB | A, B, AB, O |
| CAN RECEIVE BLOOD FROM | A, O | B, O | A, B, AB, and O | O |

**Sample Problem:**

 Alice has heterozygous type A blood and her husband Mark has homozygous type B blood. What percentage of their offspring would have type AB blood?

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

 Alice’s genotype: \_\_\_\_\_\_\_\_\_ Mark’s genotype: \_\_\_\_\_\_\_\_\_\_\_\_

 % A: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ % AB: \_\_\_\_\_\_\_\_\_\_\_\_\_

 % B: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ % O: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

