Making Babies: Blood Types Lab

INTRODUCTION:

This is a role-playing exercise for two people. The object of this exercise is for Mom and Dad to produce 50 babies and to discover a *pattern* in the random inheritance of genes by the babies. Mom and Dad are both ***heterozygous*** for the trait of "Blood Type." That is, each parent carries two different ***alleles*** ("forms of the gene") for blood type: a RED (for A) allele, and a WHITE (for O) allele for the mother and a BLUE (for B) and a WHITE (for O) allele for the father. In every egg or sperm produced (by meiosis), only one of those alleles will be found, depending on pure chance alone.

PROCEDURE:

For each new baby, ***each*** parent pulls out of his or her cup one allele (bead) without peeking, then records the allele color he or she contributed for that baby, and the "Baby" records the allele combination (***genotype***) it has inherited from its parents. The alleles are now returned to the parents' cups so that each parent is heterozygous again. All recordings are made as tally marks in the appropriate spaces of the table provided. Be sure that *all* the tally marks for each person in each set of ten "matings" add up to 10 for each person. Now record the numbers of each phenotype of the babies. The preceding is repeated until 50 babies have been produced.

PROCESSING DATA:

When all 100 babies have been produced, count the tally marks and record the totals. When this is done, one parent must report totals to Big Mamma (or Big Daddy) – the teacher – who will see how they add up for the class totals.

BABIES	Mom's Alleles		Dad's Alleles		Genotypes of Babies				Phenotypes			
	Red A allele	White O allele	Blue B allele	White O allele	Red & White (type A)	Red & Blue (type AB)	Blue & White (type B	White & White (Type O	A	B	AB	O
Example	𝍸 |	||||	𝍸 |	||||	|||	|||	||	||	3	2	3	2
1st 10												
2nd 10												
3rd 10												
4th 10												
5th 10												
Team Family Totals												
Class Totals												
Total # of Babies												

DISCUSSION: Base all answers on the **class totals**. To get percentage, divide # in column by total # of babies.

What percentage of Mom's alleles were red? _____ What percentage of Dad's alleles were blue? _____

What are the chances of Mom giving a red allele in any given mating? _____ Dad giving Blue? _____

What are the chances that a given baby will have AB blood? _____

What are the chances of Mom giving a white allele in any given mating? _____ Dad giving White? _____

What are the chances that a given baby will have O blood? _____

What was the approximate simple ratio of the genotypes in the offspring? (Use 1:1, 1:2:1, 3:1, etc.) _____

What was the approximate simple ratio of phenotypes in the offspring? _____