Blizzard Bag 2

Hi students! This Blizzard Bag 2! My we must have had a blustery to be at home, but lucky you the state of Ohio Department of Education said it will allow you to make up work at home on these blustery days.

Today the blizzard bag contains work concerning genes or alleles or traits you got from your mother and father. Half of your chromosomes came from your mother and the other half from your father, right? Well, it is not so simple, you did get an equal amount of chromosome, but the genes on those chromosomes are not equal when it comes to the influence that they have on your traits. So far, we have two genes one from each parent, right? But those two genes, while they both provide instructions for a single trait, those instructions may have different instructions. Let’s take earlobes: there are two types of earlobes, detached—in which a lob of skin and cartilage hangs from the head; and attached, in which the bottom of the ear connects directly with the side of the head. A person may have two genes for detached earlobes, two genes for attached earlobe, or one gene for attached earlobes and one gene for detached earlobes. One of those genes will be dominant and have more of a chance of showing up on you. In this case it is attached earlobes. The different varieties of genes are called alleles. EE (attached, attached), ee (detached, detached), and Ee (attached, detached). Okay, you got an introduction.

Look up the following vocabulary and then we do some practice charts on dominant and recessive alleles for practice. Yes, you need a dictionary!

Here are your words**: allele, codominance, dominant allele, gene, genotype, heterozygous, homozygous, incomplete dominance, jumping genes, multiple alleles, pedigree, phenotype, Punnett square, recessive allele, sex-linked trait, trait.**

**PUNETT SQUARES**

**Genealogists (scientists who study heredity) use a couple of tools to track the transmission of traits through generations of parents and offspring. One tool, called a Punnett square, is useful for predicting the probability that the offspring of a pairing will have a certain genotype and phenotype. Plants, people, animals have a two alleles for every kind of trait. Let’s try height in peas. A dominant tall allele (T) and a recessive short allele (t). Plea plants reproduce sexually, meaning pollen from one plant pollinates another. Each allele for height has an equal chance of becoming part of a gamete, so half of the gametes carry one allele and half of the gametes carry the other allele.**

**In a Punnett square, the alleles of the parents are placed on the top and the side of a matrix.**

 **Homozygous Dominant**

 **for height (T, T)**

**Homozygous Recessive for Height (t,t)** t

 t

 **T T**

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

**To find the possible genotypes of the offspring, fill in each square with the corresponding allele form each parent.**

**The next part of your assignment is to finish the other Punnett squares the help us determine the chances of certain gene traits.**

1. **A long horned unicorn is homozygous (L,L) and mates with a short-horned unicorn (l, l). What will your Punnett square look like? Fill in each square with the corresponding allele from each parent.**

 **Homozygous long horned (L, L)**

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

 **L L**

**Homozygous short horned (l, l)**

 l

 l

1. **A man has brown eyes but has a recessive green—he is a heterozygous (Bg); a mother has two recessive green (g, g). What chance will the offspring have for green eyes? Fill in the Punnett square to find out.**

 **Man with brown eyes Heterozygous (B, g)**

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

 **B g**

**What is the chance the boy with have brown eyes?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**What is the chance the boy will have green eyes? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**A female has green eyes—she is homozygous recessive. g**

**g**