



# Reindeer Genetics



## Problem 1.

### Reindeer phenotypes and genotypes.

**Brown fur is dominant to beige fur**

Brown fur- BB  
Brown fur- Bb  
Beige fur- bb

**Black noses are dominant to red noses**

Black nose- NN  
Black nose- Nn  
Red nose- nn

**Long antlers are dominant to short antlers**

Long antlers- AA  
Long antlers- Aa  
Short antlers- aa

**Ability to fly is dominant to not able to fly**

Flying- FF  
Flying- Ff  
Not Flying- ff

#### Story:

Dasher and Dancer were at a holiday party over at Santa's workshop. The second Dancer stepped out onto the dance floor Dasher's heart skipped a beat. She was a wonderful dancer, Dasher, not so much. Dasher is heterozygous for brown fur and has a red nose. Dancer has beige fur and is homozygous for having a black nose. Cross these two reindeer to find out their offsprings possible phenotypes.



**Genotypes:**

Dasher-

Dancer-

**Create a Dyhybrid Punnett Square**

Genotypes:				

**Questions:**

- 1.) What is the probability their offspring will have brown fur and a red nose?
- 2.) What is the probability that their offspring will have beige fur and a black nose?
- 3.) What is the probability their offspring will have brown fur and be heterozygous for having a black nose?



## Problem 2.



### Story:

Comet and Cupid were outside playing in the snow when out of nowhere Cupid, whips a snowball at Comets face. As soon as that ic, cold ball of snow hit him in the face he knew, Cupid was the love of his life. Comet has short antlers and can not fly on his own. He needs the help of magic dust. Cupid is both heterozygous for long antlers and the ability to fly. Cross these two reindeers to find out their offsprings possible phenotypes.

### Genotypes:

Comet-

Cupid-

### Create a Dyhibrid Punnett Square

Genotypes:				

### Questions:

- 4.) What is the probability their offspring will have short antlers and lack the ability to fly?
- 5.) What is the probability that their offspring will have long antlers and lack the ability to fly?
- 6.) What is the probability their offspring will be heterozygous for long antlers and be able to fly?