

**Case 17, Challenge 1: Finding a New Frosty**

Color has another layer you need to investigate! The Duchess needs you to figure out how to breed for Frost-colored drakes consistently, just in case. In this first exploration, you will do the following:

- Breed each parent combination and save a male offspring from each.
- Determine the genotype for each parent drake based on what you previously learned about color in Geniverse.
- Backcross each of the saved male offspring to the gold female parent and identify which of these yielded Frost-colored offspring.

***Breed #1: Gold female parent x Steel male parent. Save a male offspring.***

Offspring Color	Total	Female	Male
Ash			
Charcoal			
Copper			
Frost			
Gold			
Lava			
Sand			
Silver			
Steel			

***Breed #2: Gold female parent x Sand male parent. Save a male offspring.***

Offspring Color	Total	Female	Male
Ash			
Charcoal			
Copper			
Frost			
Gold			
Lava			
Sand			
Silver			
Steel			

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**Breed #3:** Gold female parent x Silver male parent. *Save a male offspring.*

<b>Offspring Color</b>	<b>Total</b>	<b>Female</b>	<b>Male</b>
Ash			
Charcoal			
Copper			
Frost			
Gold			
Lava			
Sand			
Silver			
Steel			

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**Breed #4:** Gold female parent x Male offspring saved from Breed #1.

<b>Offspring Color</b>	<b>Total</b>	<b>Female</b>	<b>Male</b>
Ash			
Charcoal			
Copper			
Frost			
Gold			
Lava			
Sand			
Silver			
Steel			

**Breed #5:** Gold female parent x Male offspring saved from Breed #2.

<b>Offspring Color</b>	<b>Total</b>	<b>Female</b>	<b>Male</b>
Ash			
Charcoal			
Copper			
Frost			
Gold			
Lava			
Sand			
Silver			
Steel			

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**Breed #6:** Gold female parent x Male offspring saved from Breed #3.

Offspring Color	Total	Female	Male
Ash			
Charcoal			
Copper			
Frost			
Gold			
Lava			
Sand			
Silver			
Steel			

1. Write the genotype of each parent drake based on your prior dealings with color in Geniverse (Metallic, Case #11, and Case #14).

- a. Gold Female: \_\_\_\_\_
- b. Steel Male: \_\_\_\_\_
- c. Sand Male: \_\_\_\_\_
- d. Silver Male: \_\_\_\_\_

2. For one of the parents, provide a brief explanation of how you used the breeding data to determine that parent's genotype.

3. Complete the summary chart below based on Breeds 4, 5, and 6.

	Produced Frost offspring? (Yes or No)	Other colors produced from this breed	Parents of the male used in this breed
Breed #4			
Breed #5			
Breed #6			