

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

You have been given a gold female drake known to have produced a Frost-colored offspring. You also have three males of Steel, Sand, and Silver colors. You need to breed these drakes and their offspring to determine how to create another Frost-colored drake. Then submit to the Journal a final claim about how color is inherited in drakes, including Frost.

- The claim must be supported by evidence and reasoning.
- The claim, evidence and reasoning must account for all drake colors.

### General Tips

- Use the data you collected during the first part of this Challenge (the *Explore* phase).
- Solving this challenge will require multiple rounds of breeding, saving offspring, and breeding again.
- You will need to backcross offspring from the original parents to the gold female you started with.
- Use Punnett squares to help you predict the outcomes of a particular breeding experiment.
- There are only 10 spaces in the stable. Delete drakes you no longer need.

### Problem-solving Guide

A skilled Master Drake Breeder would apply these guiding questions to each round of breeding and keep a clear and complete record of her/his ideas and work. Look at student organizers from other cases for ideas.

1. Which combination(s) of drakes, from your earlier breeding during the *Explore* phase, produced Frost-colored offspring?
2. Which two drakes will you breed next and why?
3. What were the results of the breed? Did any Frost-colored drakes appear?
4. How do the results of this breed fit with your current understanding about color inheritance, based on the other color Challenges? Use the stats tab to assist in understanding the results of each clutch.
5. Which offspring of this pair of parents will you save and why?
6. Which two drakes will you breed next and why?
7. When you produce Frost-colored drakes, what other colored drakes appear in the same clutch?
8. To what extent can you use your earlier learning about color inheritance to explain the results of a breed that results in offspring of mixed colors, including Frost? Use the stats tab to assist in understanding the results of each clutch.