

How many brown trout are in Cross River Reservoir??

This is Cross River Reservoir...

And this is brown trout that live there...



We released our trout! But how many trout actually live in the reservoir?

In the box below, please suggest a **strategy** to help us count how many trout live in Cross River Reservoir.

To learn more about our fish species and their populations the fishery managers at Cross River Reservoir **tagged 1000 trout**. Can this help us count how many trout live in the lake?



Imagine the bowl of beans represents Cross River Reservoir. The **red beans** are the **tagged fish** and the **white beans** are the **untagged fish**. Before we start implementing strategy, let's make a prediction as to how many beans are in this container. **Record your guess** in the box below and **explain your reasoning**. What strategy did you use to estimate the number of trout?

From the “lake” use your cup to “catch” a number of trout. Count how many tagged trout you caught as well as the total number of trout. Record the numbers in the table below:

Record your findings as a fraction or proportion: $\frac{\textit{tagged_trout}}{\textit{total_number_of_trout}} =$

In the following table record your classmates’ findings.

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	Group 10

1. Why are our findings different from one another? Suggest reasons why some students caught more fish than others.

2. Do you think that a smaller sample size or larger sample size could more accurately predict the percentage of tagged trout in the lake? **Why?**

3. In order to create a larger sample size, take the sum of the numerators and the sum of the denominators. Record your answer below.

4. Determine the proportion of tagged fish to the total number of trout in Cross River Reservoir. Assume the total number of fish in Cross River Reservoir is variable "x." Record your answer below.

5. In order to solve for variable "x" make the two proportions equal to each other.

6. Was our estimate close to the actual number of trout in Cross River Reservoir? Suggest a way that we could improve our strategy.