

BLM 4 – Salmon Probability Game

Goal: to use experimental probability to estimate the numbers of species of salmon in a “fish tank”

Materials Needed: a box or lidded bin (the “fish tank”), as well as at least 30 marbles or tokens in each of three colours (each colour represents a type of salmon)
Red: Sockeye
Green: Chum
Black: Spring

Number of Players: 4

Rules of Play

1. Choose one player to be the fisheries manager. The fisheries manager selects any 30 marbles/tokens from a selection of marbles/tokens in three different colours. A possible example: the fisheries manager could choose 5 red (Sockeye) marbles, 12 green (Chum) marbles, and 13 black (Spring) marbles. No other player should know how many marbles of each colour are selected. The fisheries manager places the 30 “fish” in a **covered** “fish tank” (e.g., box or lidded bin container) from which samples will be drawn.
2. Each of the other players uses a Recording Table (3 copies supplied on the next page) to record a guess of how many fish of each species are in the container. Players should not share their guesses.
3. The players take turns selecting one salmon from the fish tank, then **returning** the salmon. (The fisheries manager must make sure the players cannot see what is in the container as they make their selection). Players note which species was selected each time. Stop after 10 fish have been selected and returned.
4. Players now adjust their initial guesses by considering the colours of the marbles/tokens selected.
5. Repeat Steps 3 and 4 two more times.
6. The fisheries manager now reveals exactly what is in the “fish tank” Players compare their final estimates with the actual numbers of salmon to calculate their points. The player with the **fewest** points wins. For example, one player’s data might look like this:

	Initial Guess (before the draw)	Actual # of salmon in the tank	Player’s final estimate	Points (difference between actual # and estimate)
Sockeye	10	5	4	1
Chum	12	12	11	1
Spring	8	13	15	2

Total points: 4

7. Repeat the game until everyone has had the opportunity to be the fisheries manager. Share your strategies with the other players. Whose strategy worked best?

Recording Tables

	First Guess (guess the number of each species)	Estimates (re estimate after every round of pulling 10 marbles/tokens)			Number of marbles/ tokens pulled (pull 1 at a time & return it to the “tank”; do this 10 times)			Final Estimate (after 3 rounds, make a final estimate)	Actual Number of marbles/ tokens (in the “fish tank”)	Points (difference between actual number of tiles and your Final Estimate)
		Round 1	Round 2	Round 3	Round 1	Round 2	Round 3			
Sockeye										
Chum										
Spring										

	First Guess (guess the number of each species)	Estimates (re estimate after every round of pulling 10 marbles/tokens)			Number of marbles/ tokens pulled (pull 1 at a time & return it to the “tank”; do this 10 times)			Final Estimate (after 3 rounds, make a final estimate)	Actual Number of marbles/ tokens (in the “fish tank”)	Points (difference between actual number of tiles and your Final Estimate)
		Round 1	Round 2	Round 3	Round 1	Round 2	Round 3			
Sockeye										
Chum										
Spring										

	First Guess (guess the number of each species)	Estimates (re estimate after every round of pulling 10 marbles/tokens)			Number of marbles/ tokens pulled (pull 1 at a time & return it to the “tank”; do this 10 times)			Final Estimate (after 3 rounds, make a final estimate)	Actual Number of marbles/ tokens (in the “fish tank”)	Points (difference between the actual number of tiles and your Final Estimate)
		Round 1	Round 2	Round 3	Round 1	Round 2	Round 3			
Sockeye										
Chum										
Spring										