

# Chance and Data: An Interactive Workshop



Think beyond luck, discover the logic behind uncertainty!



**Setting:**  
Classroom



**Participants:**  
Grades 10–12 students



**Format:**  
Hands-On Activities, Guided Problem Solving, Reasoning Games, Real-Life Applications

## Description:

This interactive workshop introduces students to the fascinating world of probability and statistics through engaging, hands-on challenges. Participants explore a variety of well-known problems where intuition is tested against mathematical reasoning.

By analyzing and comparing their own solutions with optimal strategies, students learn how probability and statistics apply in real-life decision-making.

## Explored Topics:

- The Monty Hall Scenario (coin and cups),
- Mr. and Mrs. X's Children (two boys?  $1/2$  or  $1/3$ ?),
- Coin Toss Experiments (one has one more coin),
- The Birthday Problem (double birthday party!),
- The Optimal Stopping Strategy (bear's decision),
- Mark and Recapture (number of fish in the pond).



## Learning Outcomes:

By the end of this workshop, participants will:

- 1) Grasp key concepts in probability and statistics through interactive challenges,
- 2) Compare intuitive and mathematical solutions to real-world problems,
- 3) Explore classic probability scenarios like the Monty Hall and birthday problems,
- 4) Apply basic statistical methods such as mark-and-recapture and optimal stopping,
- 5) Strengthen logical thinking and data-based reasoning.

