

# DEADLY DISTRIBUTION

## DEADLY DISTRIBUTION IS DESIGNED TO HELP STUDENTS COMPREHEND BASIC STATISTICS CONCEPTS THROUGH REALISTIC APPLICATION, GUIDING.

**D**eadly Distribution focuses on helping students toward an understanding of the Central Limit Theorem, sample size, and sample distribution. Performing calculations has been de-emphasized in favor of a conceptual understanding of the topics.

In Deadly Distribution, the student takes on the role of regional disease control director for a small nation. A deadly infection is spreading rapidly through the area. The student must gather data about infection rates to decide how to allocate resources and ration limited treatments and vaccines, sending them where they are most needed.

To most accurately reflect real-world statistics, Deadly Distribution uses the SIR model of epidemiology and realistically modeled sampling techniques. This allows the student to see both the patterns and unpredictability of statistical data while providing unique, challenging gameplay.

Deadly Distribution emphasizes the tradeoffs required by statistical sampling. Larger, more accurate samples are more expensive, while

smaller samples are cheaper but provide less useful information. Through playing Deadly Distribution, the student will gain a better understanding of the way sample size, variance, and cost interact. Only by balancing these factors and being mindful of the data can the student contain the deadly disease, save the population, and progress to the next level.

Instruction on the central limit theorem and related topics connects with game concepts to help the student ground their understanding of difficult topics. Feedback at the end of each scenario helps the player to understand how their interpretation of the data has affected the outcome. After playing Deadly Distribution, students will have a strong foundation upon which they can move into more difficult concepts in statistics.

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