



Curriculum Units by Fellows of the Yale-New Haven Teachers Institute
2012 Volume III: Anatomy, Health, and Disease: From the Skeletal System to Cardiovascular Fitness

When Solving an Equation Means Solving a Crime

Guide for Curriculum Unit 12.03.06
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Our culture is saturated with television, movies and books that will make forensic evidence anecdotally familiar to students – fingerprints, skeletal remains, blood typing, and DNA. The purpose of this unit is to identify the specific types of data that are collected in crime scene investigations, to present the relevant background or biology involved, and to use this knowledge and statistical tools to create theories and hypotheses about the solutions to crimes.

Physical evidence is collected at the scene of a crime. It can be compared to known evidence or classified by type and assigned a probability using data. It can identify a victim or tie a suspect to the scene of the crime. Once collected and analyzed, these pieces of evidence speak most loudly through statistical analysis. Tremendous data exist to analyze evidence: databases of fingerprints, probability models based on sizes of specific bones, DNA databases. The purpose of this unit will be to inform the presentation of statistics to students by utilizing actual data sets related to the human body and judging "evidence" according to the probabilities predicted in these data sets.

Using crime cases as the basis for math problems frees students to inhabit the place of mystery and to feel comfortable in not knowing an exact answer. We will be poised together on the edge of discovering the answer to a riddle about a crime. My goal is that students learn to see mathematics as the tools to predict answers about which no one owns the truth.

(Recommended for Probability and Statistics, grades 9-12)

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