



Mr. Mitch Wilson

G-TEAMS Fellow, 2012-2013
Graduate Student, GIDP in Applied Mathematics
The University of Arizona

G-TEAMS Partners:
Jennifer Thompson and Christine Mullahy
Flowing Wells Junior High



Born in Douglas, AZ

Moved to Tucson for 7th Grade

Attended University High School

Bachelor's Degrees in Mathematics and
Mechanical Engineering, 2009

Master's Degree in Applied Mathematics, 2011

About Me

- Currently a PhD student (Doctorate Degree) in Applied Mathematics at the University of Arizona
- Career goal: To become a university professor at a four-year private college or public research university



About Me

- Other things I like to do:
 - Watching movies, Writing, Bowling
 - Me in 8th grade and me now



About Me

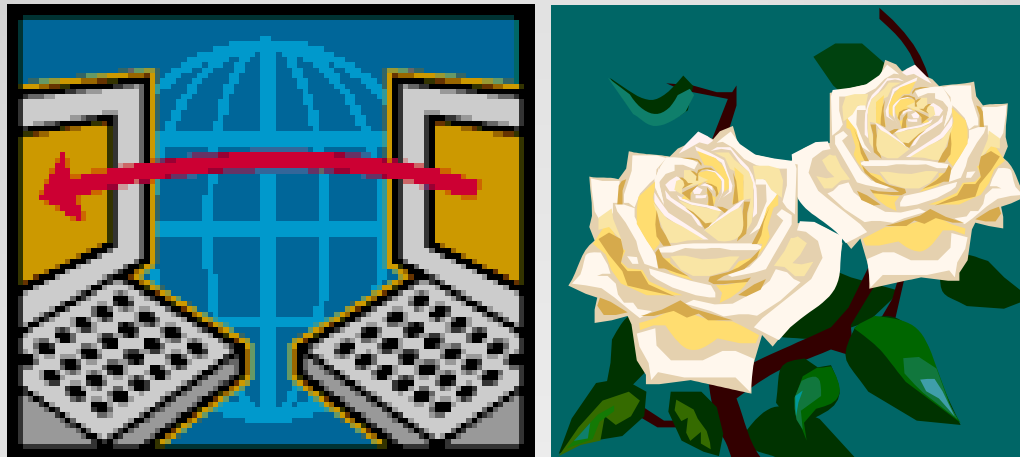
- To enrich Ms. Mullahy's and Mrs. Thompson's advanced 8th grade classes by providing an academic perspective of the curricula
- To run the weekly Mathletes Club on Wednesdays after school
- To encourage students to pursue careers in the fields of Science, Technology, Engineering, and Mathematics

My Roles This Year

- Technology is Math
 - Computers, Cell phones, Internet
- Nature is Math
 - Flowers, Trees, Weather
- Sports is Math
 - Percentages, Statistics, Odds
- Music is Math
 - Frequencies, Scales, Decibels
- Art is Math
 - Optics, Maps, Lines and Curves

Why I Like Math

- Technology is Math
 - How do two computers communicate with each other wirelessly?
- Nature is Math
 - Why do so many flowers have 5 petals?
 - How are tree branches similar to your circulatory system?



Why I Like Math

- Algebra
- Geometry
- Calculus and Analysis
- Physics, Optics, Biology, Chemistry
- Number Theory
- Graph Theory
- And More!

Many Kinds of Math

- [illegible]

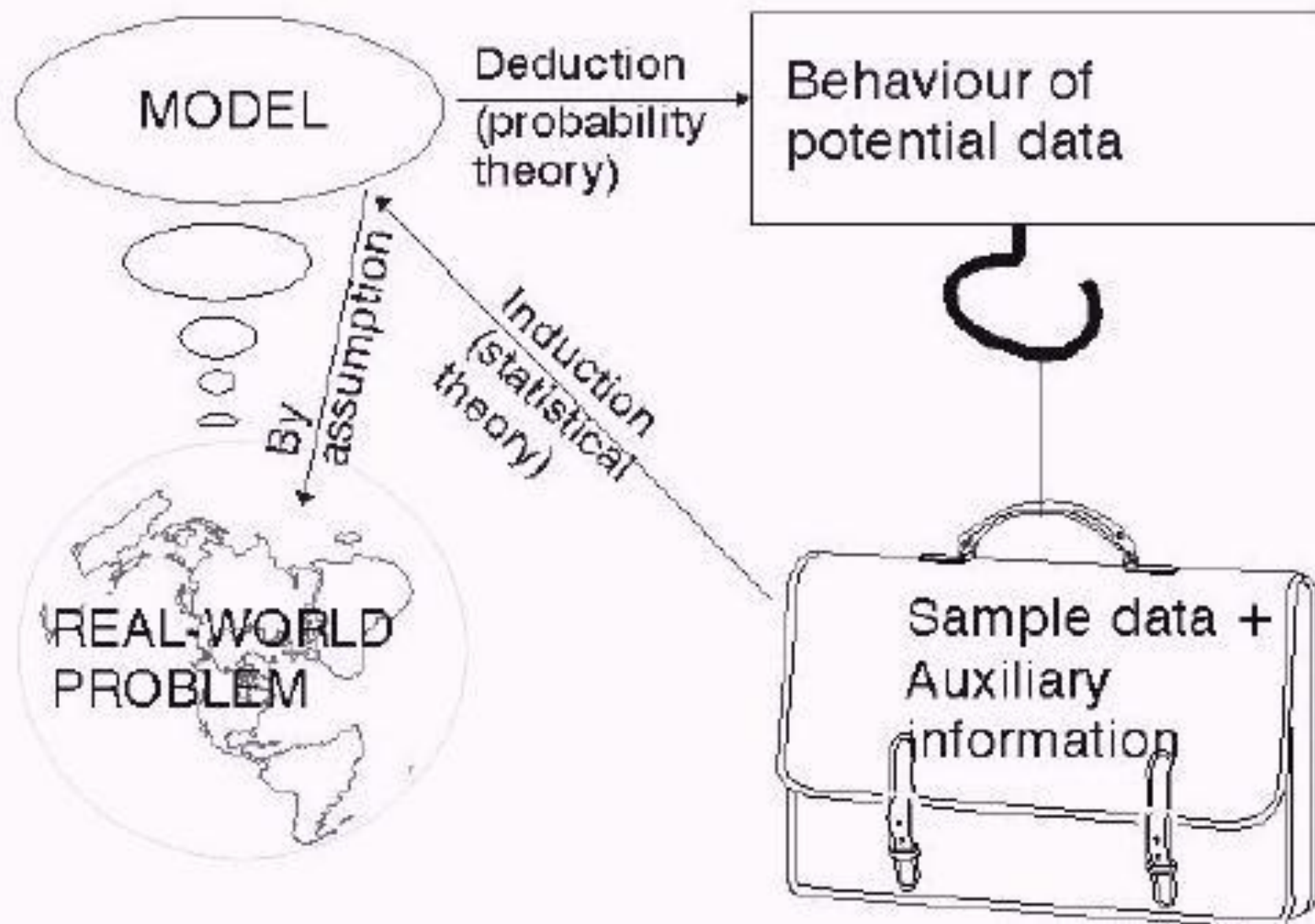
Probability and Statistics

- Things to consider:
 - Dice rolls from 2 to 12
 - Go directly to Jail space
 - Chance cards that warp you around
- It turns out Illinois Avenue (in the red section) is the most likely visited spot on the whole board
- Will it always be the most visited?

Probability and Statistics

- Probability: The chance of a certain event happening
 - What's the probability it will rain tomorrow?
 - What's the probability of rolling an 8 with 2 dice?
- Statistics: Collecting data to try and determine probabilities
 - If 180 of 300 people in a sample prefer person A for Congress, how likely is it that person A will win the election?

Probability and Statistics



- Topics: Population Genetics and Statistical Inference
- Question: In what ways can we gain information about civilization trends (such as migration patterns) through DNA?



My Research

- Distinguishing between local and traveler (or migratory) DNA
- Determining the amount of time elapsed since the two groups came into contact
- Using DNA Software to replicate, simulate, and analyze these genetic exchanges

My Research

- Use Math and Statistics to help refute or verify current estimates of population migration patterns
- Relate this kind of information to processes where we don't have a lot of information
 - Economics
 - Data Mining (Web Searches)

Goals

Questions From You?