



## Probability and Statistics Instruction in the West Shore School District

Mathematics instruction in the West Shore School District is aligned to the PA Core Standards and identified best practices. We utilize a variety of strategies and differentiate our instruction to meet the needs of all learners. Technology and 21st Century Skills are thoughtfully woven into our lessons and units of instruction. This document is meant to offer an overview of important concepts in this course. Probability and Statistics is an advanced mathematics course for students who wish to pursue a career in a wide variety of fields such as psychology, sociology, health related professions, biology and business to name a few. A strong background in Algebra II is the minimum requirement. It provides a sound foundation for further study at the college level where the student is likely to encounter a statistics course within their academic discipline. Topics include data description, sampling methods, measures of central tendency and dispersion, hypothesis testing, linear regression and probability distributions.

### **Best Practices in Probability & Statistics:**

- Analysis of scientific reasoning by guiding students in the practice and concepts of statistical ideas and methods.
- Emphasis on the underlying concepts that quantify empirical observations and how they help us to make sense of theoretical applications in the real world
- Evaluation that focuses on statistical processes and attitudes through authentic tasks and attention to varied learning styles and needs.
- All mathematical content within units or topics should incorporate focus, exploration, reflection, application. These will be further enhanced through the use of technology.

### **Skills and Concepts:**

Data description  
Sampling Methods  
Measures of central tendency, dispersion and variability  
Probability Distributions  
Expectancy & Risk  
Statistical Analysis  
Regression Analysis  
Hypothesis Testing  
Chi-Square Tests

### **Standards and Assessments:**

WSSD utilizes a variety of assessments to monitor student growth and achievement. Our teachers engage in daily informal formative assessments to make timely decisions about whether a student understands the material and concepts being presented. We also utilize several summative assessments to determine if a student has mastered grade level skills and standards.

*Some of the assessments utilized are:*

- Case Studies using authentic data
- Tests
- Projects
- Papers/Essays

### **Materials and Resources:**

Data Sets  
Graphing Calculator  
Case Studies  
Text Book

### **Parent Resources:**

Instructional help:

[Kahn Academy](#)

A Great Book:

[The Signal and the Noise](#) by Nate Silver

Statistics at Work:  
<http://fivethirtyeight.com>

Careers in Statistics:  
[Careers](#)