

Syllabus

Math 7B

Course Overview

Mathematics is the study of the patterns around us. In this course, you will learn more about geometry, statistics, and probability. Geometry is a branch of mathematics that uses formal methods of thinking to show relationships between points, lines, surfaces, and solids. Statistics and probability are closely related subjects. In statistics, you will practice collecting and analyzing numerical data to make decisions. Probability is the study of the likelihood that an event will occur. For example, what is the likelihood that you will win a spelling bee if there are 40 participants? Knowing more about these three disciplines will help you solve problems you encounter every day.

Course Goals

By the end of this course, you will:

- Solve problems that involve scale drawings of geometric figures.
- Construct geometric shapes with traditional tools and with technology to satisfy given conditions.
- Solve real-world and mathematical problems involving angle measure, area, surface area, and volume.
- Use data from a random sample to draw inferences about a population.
- Compare two populations using their measures of center and measures of variability.
- Understand that probability is a measure of the likelihood that a chance event will occur.
- Compare expected probability to relative frequency and explain any discrepancies.
- Find the probability of a compound event by identifying all the possible outcomes surrounding the event.
- Design and use a simulation to generate frequencies for compound events.

General Skills

To participate in this course, you should be able to do the following:

- Complete basic operations with word processing software, such as Microsoft Word and Google Docs.
- Communicate through email and discussion boards.

For a complete list of general skills that are required for participation in online courses, refer to the Prerequisites section of the Plato Student Orientation document, found at the beginning of this course.

Credit Value

Math 7B is a 0.5-credit course.

Course Materials

- Notebook
- Calculator
- Computer with Internet connection and speakers or headphones

Course Pacing Guide

This course description and pacing guide is intended to help you stay on schedule with your work. Note that your course instructor may modify the schedule to meet the specific needs of your class.

Unit 1: Geometry

Summary

In this unit, you will solve problems involving scale drawings of geometric figures and draw geometric shapes from a set of given conditions. You will use formulas for area, surface area, and volume of two- and three-dimensional objects to solve real-world problems.

Day	Activity / Objective	Type
1 day: 1	Syllabus and Plato Student Orientation <i>Review the Plato Student Orientation and Course Syllabus at the beginning of this course.</i>	Course Orientation
4 days: 2–5	Scale Drawings <i>Solve problems that involve scale drawings of geometric figures.</i>	Lesson
4 days: 6–9	Geometric Constructions <i>Draw geometric shapes freehand with a ruler and a protractor and also with technology.</i>	Lesson
4 days: 10–13	Cross Sections of Three-Dimensional Objects <i>Describe two-dimensional figures that result from slicing three-dimensional figures.</i>	Lesson
4 days: 14–17	Area and Circumference of a Circle <i>Study the formulas for the area and circumference of a circle and use them to solve problems.</i>	Lesson
4 days: 18–21	Angle Relationships <i>Use facts about angles to write and solve simple equations for a figure's unknown angle.</i>	Lesson

4 days: 22–25	Applications of Area, Surface Area, and Volume <i>Solve real-world and mathematical problems that involve area, volume, and surface area of two- and three-dimensional objects.</i>	Lesson
5 days: 26–30	Unit Activity and Threaded Discussion—Unit 1	Unit Activity Discussion
1 day: 31	Posttest—Unit 1	Assessment

Unit 2: Statistics

Summary

In this unit, you will explore how statistics can be used to gain information about a population by examining a sample of the population. You will also use data from a random sample to draw inferences about the characteristics of a population. Finally, you will understand and use measures of center and measures of variability to compare two populations.

Day	Activity / Objective	Type
4 days: 32–35	Sampling Populations <i>Learn about a population by using statistics to study a sample of the population.</i>	Lesson
4 days: 36–39	Making Predictions Based on Random Samples <i>Use data from a random sample to draw conclusions about a population.</i>	Lesson
4 days: 40–43	Comparing Data Distributions <i>Determine the amount of overlap for two data distributions that have similar variabilities.</i>	Lesson
4 days: 44–47	Using Measures of Center and Measures of Variability <i>Use measures of center and measures of variability to compare two populations.</i>	Lesson
5 days: 48–52	Unit Activity and Threaded Discussion—Unit 2	Unit Activity Discussion
1 day: 53	Posttest—Unit 2	Assessment

Unit 3: Probability

Summary

In this unit, you'll learn that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. You will compare expected probability to experimental probability, also called relative frequency. You'll also find the probability of a compound event by identifying and organizing all the possible outcomes surrounding the event. Finally, you'll use a simulation to generate possible outcomes for a compound event.

Day	Activity / Objective	Type
4 days: 54–57	Introduction to Probability <i>Understand that the likelihood that a chance event will occur can be expressed as a number between 0 and 1.</i>	Lesson
4 days: 58–61	Making Predictions Based on Probabilities <i>Predict the probability of a chance event based on collected data and predict a relative frequency given the probability.</i>	Lesson
4 days: 62–65	Simulations and Probability <i>Use simulations to generate frequencies for real-world events.</i>	Lesson
4 days: 66–69	Comparing Probability and Relative Frequency <i>Compare expected probability to relative frequency and explain any discrepancies.</i>	Lesson
4 days: 70–73	Sample Spaces for Compound Events <i>Show possible outcomes for compound events in organized lists, tables, and tree diagrams.</i>	Lesson
5 days: 74–78	Probability of Compound Events <i>Understand that the probability of a compound event occurring is a fraction of all possible outcomes.</i>	Lesson
4 days: 79–82	Simulations for Compound Events <i>Design and use a simulation to generate frequencies for compound events.</i>	Lesson
5 days: 83–87	Unit Activity and Threaded Discussion—Unit 3	Unit Activity Discussion

1 day: 88	Posttest—Unit 3	Assessment
1 day: 89	Semester Review	
1 day: 90	End-of-Semester Test	Assessment