Syllabus

# Math 6, Semester B

## Course Overview

Mathematics is the study of the patterns around us. Using the tools in this course, you will learn more about how to solve problems using expressions and equations. When you understand how to work with numbers in equations, and how to manipulate equations, you can more easily solve problems you encounter in everyday life.

## Course Goals

By the end of this course, you will be able to do the following:

- Evaluate exponential expressions.
- Work with expressions in which letters stand for numbers.
- Describe the properties of operations to determine whether two expressions are equivalent.
- Evaluate equations and inequalities.
- Analyze real-world problems and use variables to solve them.
- Determine the area of a triangle, rectangle, or polygon made up of triangles and rectangles.
- Determine the volume of right rectangular prisms.
- Recognize questions that can be answered using statistics.
- Describe different methods of determining the center of a set of numbers.

## 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 or Google Docs.
- Perform online research using various search engines and library databases.
- Communicate through email and participate in 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 6B is a 0.5-credit course.

## Course Materials

- Notebook
- Computer with Internet connection and speakers or headphones
- Microsoft Word or equivalent

# 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: Expressions and Equations

**Summary**

In this unit, you will use your previous knowledge of rational numbers to form algebraic equations and solve one-variable equations and inequalities. You will analyze the relationship between independent and dependent variables.

| Day | **Activity***/Objective* | Type |
|---|---|---|
| 1 day: 1 | **Syllabus and Plato Student Orientation**<br>*Review the Plato Student Orientation and Course Syllabus at the beginning of this course.* | Course Orientation |
| 4 days: 2–5 | **Exponential Expressions**<br>*Write and evaluate numerical expressions involving whole-number exponents.* | Lesson |
| 4 days: 6–9 | **Using Variables**<br>*Write, read, and evaluate expressions in which letters stand for numbers.* | Lesson |
| 4 days: 10–13 | **Properties of Operations**<br>*Apply the properties of operations to determine whether two expressions are equivalent.* | Lesson |
| 4 days: 14–17 | **Problems with Equations**<br>*Study solving an equation as a process of answering a question.* | Lesson |
| 4 days: 18–21 | **Problems with Inequalities**<br>*Study solving an inequality as a process of answering a question.* | Lesson |
| 4 days: 22–25 | **Real-World Expressions**<br>*Use variables to represent numbers when solving real-world and mathematical problems.* | Lesson |
| 4 days: 26–29 | **Equations in the Real World**<br>*Solve real-world problems by writing and solving equations.* | Lesson |

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| 4 days: 30–33 | **Inequalities as Constraints**<br>*Write an inequality to represent a real-world mathematical problem.* | Lesson |
| 4 days: 34–37 | **Quantitative Relationships**<br>*Use variables to represent two quantities that change in relationship to one another.* | Lesson |
| 4 days: 38–41 | **Unit Activity and Discussion—Unit 1** | Unit Activity Discussion |
| 1 day: 42 | **Posttest—Unit 1** | Assessment |

# Unit 2: Geometry

**Summary**

In this unit, you will find area, volume, and surface area of polygons in mathematical and real-world contexts.

| Day | **Activity/***Objective* | Type |
|---|---|---|
| 4 days: 43–46 | **Area**<br>*Find the areas of triangles, special quadrilaterals, and polygons by composing or decomposing them into other shapes.* | Lesson |
| 4 days: 47–50 | **Volume**<br>*Apply volume formulas to find the volumes of right rectangular prisms.* | Lesson |
| 4 days: 51–54 | **Polygons**<br>*Use coordinates to find the length of a side of a polygon.* | Lesson |
| 4 days: 55–58 | **Three-Dimensional Figures**<br>*Represent three-dimensional figures using nets made up of rectangles and triangles, and find the surface area of these figures.* | Lesson |
| 4 days: 59–62 | **Unit Activity and Discussion—Unit 2** | Unit Activity Discussion |

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| 1 day: 63 | **Posttest—Unit 2** | Assessment |

# Unit 3: Statistics and Probability

**Summary**
In this unit, you will study concepts related to statistics. You will describe statistical and nonstatistical situations and find the measures of center and measures of variation for statistical data.

| Day | **Activity/***Objective* | Type |
|---|---|---|
| 4 days: 64–67 | **Introduction to Statistics**<br>*Recognize statistical questions and examine the habits of data collected to answer them.* | Lesson |
| 4 days: 68–71 | **Measures of Center**<br>*Recognize the difference between measure of center and measure of variation.* | Lesson |
| 4 days: 72–75 | **Descriptive Statistics**<br>*Display numerical data on a number line in plots, including dot plots, histograms, and box plots.* | Lesson |
| 4 days: 76–79 | **Data Sets**<br>*Describe the nature of an attribute under investigation, including how it was measured and its units of measurement.* | Lesson |
| 4 days: 80–83 | **Interpreting Statistics**<br>*Relate the choice of measures of center and variability to the shape of the data distribution.* | Lesson |
| 4 days: 84–87 | **Unit Activity and Discussion—Unit 3** | Unit Activity Discussion |
| 1day: 88 | **Posttest—Unit 3** | Assessment |
| 1 day: 89 | **Semester Review** | |

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| 1 day: 90 | **End-of-Semester Test** | Assessment |