Math 6, Semester A

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:

- Analyze proportional relationships, and determine the ratios that describe them.
- Use your own words to describe the relationship a ratio describes.
- Divide fractions by fractions.
- Work fluently with fractions and decimals, converting fractions to decimals and vice versa.
- Visualize numbers and ordered pairs by using number lines and the coordinate plane.
- Determine solutions to inequalities on number lines.
- Evaluate expressions using absolute values.

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 6A is a 0.5-credit course.

Course Materials

- Notebook
- Computer with Internet connection and speakers or headphones
- Microsoft Word or equivalent
- Microsoft Excel 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: Ratios and Proportional Relationships

Summary

In this unit, you will explore basic principles of ratios and proportional relationships. Using the skills you learn, you will be able to solve real-world problems that use ratios. For example, you can use these tools to convert feet into inches, double or halve recipes, or describe a relationship between two objects using proportional language (e.g., the building is twice as tall as the tree next to it).

Day	Activity/*Objective*	Type
1 day: 1	**Syllabus and Plato Student Orientation** *Review the Plato Student Orientation and Course Syllabus at the beginning of this course.*	Course Orientation
4 days: 2–5	**Introduction to Ratios** *Study ratios and use them to describe relationships between quantities.*	Lesson
4 days: 6–9	**Rates** *Explore the concept of a unit rate and use rates to describe ratio relationships.*	Lesson
4 days: 10–13	**Tables of Ratios** *Make tables of equivalent ratios and use them to compare ratios.*	Lesson
4 days: 14–17	**Applications of Rates** *Solve unit rate problems, including those that involve unit pricing and constant speed.*	Lesson
4 days: 18–21	**Ratios and Rates as Percentages** *Find a percentage of a quantity as a rate per 100, and solve problems that involve finding the whole, given a part and the percentage.*	Lesson
4 days: 22–25	**Measurement Units and Ratio Conversions** *Use ratio reasoning to convert measurement units.*	Lesson

| 4 days: 26–29 | **Unit Activity and Discussion—Unit 1** | Unit Activity Discussion |
| 1 day: 30 | **Posttest—Unit 1** | Assessment |

Unit 2: The Number System

Summary

In this unit, you will apply and extend your previous understanding of multiplication and division to divide fractions by fractions. You will compute with multidigit numbers and find common factors and multiples.

Day	Activity/*Objective*	Type
4 days: 31–34	**Dividing Fractions** *Interpret and find quotients of fractions in real-world situations.*	Lesson
4 days: 35–38	**Dividing Multidigit Numbers** *Divide multidigit numbers using the standard algorithm.*	Lesson
4 days: 39–42	**Operations with Decimals** *Add, subtract, multiply, and divide multidigit decimals using the standard algorithm for each operation.*	Lesson
4 days: 43–46	**Common Factors and Multiples** *Express a sum of two whole numbers with a common factor as a multiple of a sum of two whole numbers with no common factor.*	Lesson
4 days: 47–50	**Positive and Negative Rational Numbers** *Use positive and negative numbers to represent quantities in real-world situations.*	Lesson
4 days: 51–54	**Unit Activity and Discussion—Unit 2**	Unit Activity Discussion
1 day: 55	**Posttest—Unit 2**	Assessment

Unit 3: Visualizing Numbers

Summary
In this unit, you will apply and extend your understanding of numbers to the system of rational numbers. You will use the coordinate plane, a useful tool for visualizing the behavior of equations, and explore absolute values and their unique role in manipulating equations.

Day	Activity/ *Objective*	Type
4 days: 56–59	**The Number Line** *Represent positive and negative rational numbers on a number line.*	Lesson
4 days: 60–63	**The Coordinate Plane** *Find and position pairs of integers and other rational numbers on a coordinate plane.*	Lesson
4 days: 64–67	**Inequalities on the Number Line** *Interpret statements of inequality as statements about the relative position of two numbers on a number line.*	Lesson
4 days: 68–71	**Ordering Values in the Real World** *Write and explain statements of order for rational numbers in real-world situations.*	Lesson
4 days: 72–75	**Absolute Values** *Study the absolute value of a rational number as its distance from zero on the number line.*	Lesson
4 days: 76–79	**Comparing Absolute Values** *Recognize the difference between comparisons of absolute value and statements about order.*	Lesson
4 days: 80–83	**The Coordinate Plane in the Real World** *Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane.*	Lesson
4 days: 84–87	**Unit Activity and 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