Integrated Math 1, Part 2 Course Outline & Objectives

Course Description:

Integrated Math 1 Part 2 begins with a discussion of basic statistics and methods for organizing and interpreting data. Students are introduced to the basics of geometry, including definitions of the building blocks of geometry, as well as methods for finding the distance and midpoints of segments on the coordinate plane. Students apply their knowledge of linear equations to angles, parallel and perpendicular lines, triangles, and polygons. Students learn how to compute perimeters and areas of a variety of types of polygons. They explore the basics of logic and proofs, including the concepts of conditional statements, inductive vs. deductive reasoning, and common postulates and properties. Finally, using the concepts of congruence, students will recognize and construct transformations as well as prove triangles congruent.

Credits - One Semester (0.5 Carnegie unit / CA: 5 credits) | Prerequisites: Integrated Math 1, Part 1

Course Outline

Unit 1- Statistics and Data Analysis

- 1.1 Mean, Median, Mode, Range, and Standard Deviation 1.2 Box and Whisker Plot
- 1.3 Distributions Right, left, and Zero Skewed
- 1.4 Two Way Tables
- 1.5 Quantitative vs. Qualitative Data

Common Core Standards

In this unit:

Students will calculate measures of central tendency to describe a set of data. Students will represent statistical data visually in box plots, and bar graphs, and use these representations to analyze data. Applying their knowledge of data and distribution, students will determine probabilities and make predictions. Students will evaluate scenarios in which data is collected to determine if data is qualitative or quantitative.

[S-CP, S-MD]

Unit 2 – An Intro to Geometry

2.1 Points, Lines, Rays, Segments, and Planes
2.2 Line Segments – Distance and the Segment Addition
Postulate
2.3 The Distance Formula
2.4 The Midpoint Formula

- 2.5 The Coordinate Plane Area and Perimeter
- 2.6 Types of Angles
- 2.7 Pairs of Angles

Unit 3 – Perimeter and Area

3.1 Perimeters of Polygons3.2 Areas of Triangles3.3 Areas of Parallelograms3.4 Areas of Trapezoids3.5 Areas of Rhombus and Kites3.6 Areas of Regular Polygons

In this unit:

Students will learn the basic concepts of Geometry, particularly, points, lines segments and planes. Students will extend their understanding of segments to include finding the length of a segment, the midpoint, and apply the segment addition postulate. Students will use the coordinate plane to graph figures and use the distance formula to calculate area and perimeter. Students will learn to name, classify, and measure angles. [G-CO, G-GPE, G-MG]

In this unit:

Students will learn to classify polygons by the number of sides and angle measures. Applying their knowledge of area formulas, students will find area, perimeter, angle measure and side length of triangles, parallelograms, trapezoids, a rhombus and kites. [G-GPE]

Course Outline

Unit 4 – Proofs and Reason

4.1 Conditional Statements, Converse, Inverse, and Contrapositives

4.2 Inductive vs. Deductive Reasoning

4.3 Point, line, and Plane Postulates

4.4 Reflexive, Symmetric and Transitive Properties

4.5 Types of Proofs - Two Column, Flowchart, & Paragraph

Unit 5 – Parallel vs. Perpendicular Lines

- 5.1 Parallel, Perpendicular and Skew Lines Defined
- 5.2 Parallel Lines and Transversals The Angles They Form
- 5.3 Identifying Parallel and Perpendicular Lines

5.4 Writing Linear Equations – Parallel Lines

5.5 Writing Linear Equations – Perpendicular Lines

Unit 6 – Transformations and Graphs

6.1 Translations6.2 Rotations6.3 Dilations6.4 Reflections

6.5 Compositions of Transformations

Unit 7 – Triangles

7.1 Types of Triangles7.2 Congruent Polygons7.3 Equilateral and Isosceles Triangles

7.4 Proving Triangles Congruent by SSS and ASA

7.5 Proving Triangles Congruent by SAS, HL and AAS 7.6 CPCTC

Common Core Standards

In this unit:

Students will learn the basic principles of logic, including deductive and inductive reasoning. Students will learn to write conditional statements, including contrapositive, converse and inverse statements. Students will learn postulates and properties, then apply these to prove various geometric theorems. [G-GPE, G-CO, S-CP, S-MD]

In this unit:

Students will learn the characteristics of parallel, perpendicular and skew lines. Students will learn to classify and determine the measure of angles created by a transversal and parallel lines. Students will use information such as slope and points to write the equations of a line.

[A-CED, A-REI, G-CO, G-GPE]

In this unit:

Students will learn to identify rigid and non-rigid transformations, including translations, reflections, rotations and dilations. Using composition of transformations, students will construct congruent and similar figures.

[G-CO]

In this unit:

Students will learn to classify triangles by side length and angle measure. Students will learn to prove triangles are congruent using SSS, SAS, ASA, AAS, and HL. Applying their understanding of congruent triangles, students will determine the lengths of sides of polygons and triangles. [G-CO]