



Sparta Area School District

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Course Outcome Summary

Course Information: (SPMAT2) Functional Math 2

Description: This class will be designed around the functional skills of the students enrolled. We will utilize a variety of resources. The primary focus is to improve skills of number sense, addition, subtraction, multiplication, division, equations, fractions, measurements, geometry, and graphing.

Instruction Level: Differentiated

Total Credits: 2

Prerequisites: (Grade 4-6 skill level)

Textbooks: Math Expressions, Author, Publisher, ISBN # here

Course Standards:

Common Career and Technical Core:

<https://www.act.org/content/dam/act/unsecured/documents/CCRS-MathStandards.pdf>

Unit

1. Perimeter and Area
2. Addition and Subtraction of Whole Numbers and & Decimals
3. Circles, Polygons, & Angles
4. Addition and Subtraction with Fractions
5. Volume, Capacity, and Weight
6. Ratio, Proportion, and Percent

Unit Outlines

1. Perimeter and Area

- Square Units and Area
- Perimeter and Area of Rectangles
- Area of Right Triangles and Parallelograms
- Area of Triangles
- Consolidate Perimeter and Area
- Units of Length

Standards:

- G 302. Compute the perimeter of polygons when all side lengths are given
- G 303. Compute the area of rectangles when whole number dimensions are given
- G 403. Compute the area and perimeter of triangles and rectangles in simple problems
- G 505. Compute the perimeter of simple composite geometric figures with unknown side lengths
- G 506. Compute the area of triangles and rectangles when one or more additional simple steps are required

Essential Question:

- How do you find the area and perimeter of triangles?
- How do you find the area and perimeter of parallelograms?
- How do you find the area and perimeter of rectangles?
- What is the formula for perimeter and area for different shapes?

Essential Knowledge:

- Find the perimeter and area of rectangles
- Distinguish between linear units for perimeter and square units for area
- Find the perimeter and area of parallelograms
- Derive the formula for the area of a triangle from the formula for the area of a parallelogram
- Find perimeter and area of complex figures
- Estimate measurements

2. Addition and Subtraction of Whole Numbers and & Decimals

- Decimals as Equal Divisions
- Equate and Compare
- Thousands to Thousandths
- Adding and Subtracting Decimals
- Billions to Billionths
- Use Place Value

Standards:

- N 301. Recognize one-digit factors of a number
- N 302. Identify a digit's place value
- N 303. Locate rational numbers on the number line
- 5.nBt Read, write, and compare decimals to thousandths
- 5.nBt Compare two decimals to thousandths
- 5.nBt Use place value understanding to round decimals to any place

Essential Question:

- How do you add and subtract decimals?
- How do you add and subtract whole numbers?
- When subtracting whole and decimal numbers, how do you regroup?
- What are the number is in the tens place (thousands, thousandths, etc.)
- Where does the whole number or decimal number fit on the number line?
- How do you order whole numbers and decimal numbers?

Essential Knowledge:

- Understand place value for billionths through billions
- Compare and order whole numbers and decimals
- Round whole numbers and decimals to estimate sums and differences
- Use the commutative, associative, and distributive properties
- Use different models to write a decimal in standard form, word form, expanded form, and as a fraction
- Interpret and make a pictograph, bar graph, and line graph
- Distinguished between and match the appropriate graphs for numerical and categorical data and discrete and continuous data

3. Circles, Polygons, & Angles

- Circles and Angles
- Lines and Angles
- Polygons and Angles
- Compare and Contrast Polygons
- Symmetry
- Circle Graphs

Standards:

- G 402. Exhibit knowledge of basic angle properties and special sums of angle measures (e.g., 90° , 180° , and 360°)
- G 501. Use several angle properties to find an unknown angle measure
- G 502. Count the number of lines of symmetry of a geometric figure
- G 507. Compute the area and circumference of circles after identifying necessary information

Essential Question:

- What is the formula for finding the circumference of a circle?
- What are the lines of symmetry for different figures?
- Do these figures have line symmetry?
- What are the missing angles from the following shapes?

Essential Knowledge:

- Use a protractor to determine the measure of any angle
- Classify polygons by their angles and sides
- Identify two-dimensional figures with line and rotational symmetry
- Model turns of a circle
- Interpret and create circle graphs
- Explore circumference
- Identify congruent figures

4. Addition and Subtraction with Fractions

- Build Unit Fractions
- Compare Fractions
- Subtract Fractions
- Fractional Addends of One
- Relate Fractions and Wholes
- Fractions Greater than One

Standards:

- N 501. Order fractions
- N 502. Find and use the least common multiple
- N 503. Work with numerical factors
- N 504. Exhibit some knowledge of the complex numbers
- N 505. Add and subtract matrices that have integer entries

Essential Question:

- How do you order fractions from least to greatest? and greatest to least?
- How do you add and subtract fractions with like denominators?
- How do you add and subtract fractions with unlike denominators?
- Which fractions equal to whole numbers?

Essential Knowledge:

- Compare and order fractions, mixed numbers, and decimals
- Write fractions and decimals in equivalent form
- Convert and use improper fractions and mixed numbers
- Add and subtract fractions and mixed numbers with like and unlike denominators
- Solve word problems involving addition and subtraction of fractions and mixed numbers
- Describe probability situations by finding fractional equivalents

5. Volume, Capacity, and Weight

- Cubic Units and Volume
- Relate Length, Area, and Volume
- Measures of Capacity
- Measures of Mass and Weight
- Working with Measurement Units
- Temperature

Standards:

- 5.MD Convert like measurement units within a given measurement system
- 5.MD Represent and interpret data
- 5.MD Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition

Essential Question:

- What is the difference between length, area, and volume?
- How do you measure temperature and read a thermometer?
- How do you measure mass and weight?
- What is the difference between mass and weight?

Essential Knowledge:

- Convert among customary or metric units of length, capacity, and weight or mass
- Apply units of length to calculate area, and volume
- Choose the appropriate unit of measure and tool
- Solve problems involving customary or metric units of measure
- Relate length, area, and volume
- Identify the use of negative numbers in real-world situations
- Solve problems involving elapsed time

6. Ratio, Proportion, and Percent

- Multiplication Patterns
- Unit Rate
- Liked Stores are Ratios
- Basic Ratios
- What are Proportion Situations?
- The Meaning of Percent

Standards:

- 6.RP Understand ratio concepts and use ratio reasoning to solve problems
- 6.RP Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.
- 6.RP Understand the concept of a unit rate a/b associated with a ratio and use rate language in the context of a ratio relationship.
- 6.RP Use ratio and rate reasoning to solve real-world and mathematical problems

Essential Question:

- How do you distinguish multiplication situations from non-multiplication situations?
- How do you make a table to show a multiplication situation?
- How do you apply unit rate to all multiplication situations.
- How do you pose questions about multiplication situations?
- How do you describe a relationship between two quantities?

Essential Knowledge:

- Solve problems involving ratios
- Apply unit rates
- Solve numeric proportion problems
- Solve proportion word problems
- Solve problems using percent
- Express the probability of an event as a percent
- Identify similar figures
- Use a scale to find a distance on a map or length on a scale drawing
- Solve problems involving proportional relationships in similar figures