



Grade 5

Week 1: Operations and Algebraic Thinking (4 Days)

➤ Day 1 & 2

Objective

Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.

- Examples:
- $(26 + 18) / 4$ Solution: 11
- $12 - (0.4 \times 2)$ Solution: 11.2
- $(2 + 3) \times (1.5 - 0.5)$ Solution: 5
- $6 - (1/2 + 1/3)$ Solution: $5 \frac{1}{6}$

- ❖ Camp introduction(Welcome, Who we are, What we do, Why scholars are here)
- ❖ Students expectations/Rules and Regulations
- ❖ Meet and greet activity (Icebreaker)
 - Title: Me, By the Numbers
 - Students will write down ten numbers that represent some aspect of their lives
 - Example: 2, 4, 7, 54, ...
 - For me: The number 2 represents how old my pit-bull Frankie is; 4 represents the basketball jersey number that I wore throughout high school and collegiate play; 7 represents the total number of basketball State championships that my alma mater, Miller Grove high school, has won since my senior class won # 1/7 back in the year 2009; 54 represents how old my father is....
- ❖ Pre Assessment Exam
- ❖ Lecture: PEMDAS
- ❖ Power Point
 - What is PEMDAS?

➤ Day 3

Objective

Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.

- ❖ Lecture

- Example:
 - $4(5 + 3)$ is an expression.
 - When we compute $4(5 + 3)$ we are evaluating the expression. The expression equals 32.
 - $4(5 + 3) = 32$ is an equation.
- Students will be able to describe the relationship between expressions without actually calculating them.
 - Example:
 - Write an expression for the steps “double five and then add 26”
 - **Student:** $(2 \times 5) + 26$
 - Describe how the expression $5(10 \times 10)$ relates to 10×10 .
 - **Student:** The expression $5(10 \times 10)$ is 5 times larger than the expression 10×10 since I know that $5(10 \times 10)$ means that I have 5 groups of (10×10) .
 - PowerPoint
 - Should explain the difference between expressions and equations, and then we will give examples of each. We want the scholars to identify which is which. We will also incorporate some word problems and show the scholars how to describe the relationships between expressions without calculating them.

➤ Day 4

Objective

Review the topics covered throughout the week and take weekly quiz.

❖ Lecture

- Review topics covered throughout the week and answer any questions. Thoroughly demonstrate how to solve difficult problems.

Week 2 & 3 Analyzing Patterns and Relationships/ Numbers and Operations in Base Ten

➤ Day 1 & 2 (Week 2 content)

Objective

Generate patterns with a given rule and identify relationships between corresponding terms by completing a function table or input/output table.

❖ Lecture

- Extend a pattern with or without concrete materials, and explain how each element differs from the preceding one.
- Describe, orally or in writing, a pattern using mathematical language, such as one more, one less, five more.
- Describe the relationship in a table or chart using a mathematical expression.
- Predict subsequent elements in a pattern.
- Students will identify relationships between dependent variables, independent variables, and constant rates. Then they will describe the patterns and plot points on a coordinate plane to represent their descriptions.
 - Example: Sam and Terri live by a lake and enjoy going fishing together every day for five days. Sam catches 2 fish every day, and Terri catches 4 fish every day.
 - Describe the pattern
 - Plot points on coordinate plane represent the data
 - Identify ordered pairs

➤ Day 3

Objective

Review the topics covered throughout the week and take weekly quiz.

❖ Lecture

- Review topics covered throughout the week and answer any questions. Thoroughly demonstrate how to solve difficult problems.
- Analyzing Patterns and Relationships

➤ Day 4 (Week 3 content)

Objective

Recognize that in multi-digit numbers, a digit in the one-place represents 10 times as much as it represents in the place to its right and $\frac{1}{10}$ of what it represents in the place to its left.

❖ Lecture

- Students should be able to express that when they add decimals they add tenths to tenths and hundredths to hundredths. So, when they are adding in a vertical format (numbers beneath each other), it is important that they write numbers with the same place value beneath each other.

➤ Day 1

Objective

Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10.

❖ Lecture

- Use whole-number exponents to denote powers of 10.
- What is scientific notation
- Add, subtract, multiply, and divide decimals to hundredths, using concrete models of drawing and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used
- Examples
- $2.5 \times 10^3 = 2.5 \times (10 \times 10 \times 10) = 2.5 \times 1000 = 2500$
 $350/10^3 = 350/1000 = 0.350 = .35$

➤ Day 2

Objective

Read, write, and compare decimals to tenths, hundredths, thousandths

❖ Lecture

- Read and write decimals to thousandths using base-ten numerals, number names, and expanded form.
- Compare two decimals to thousandths based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.

❖ PowerPoint

- Place Value to Millionths

➤ Day 3

Objective

Use place value understanding to round decimals up to the hundredths place.

❖ Lecture

- Students will use benchmark numbers on a number line in order to understand rounding.
- Example:
Round 14.235 to the nearest tenth.

- Students recognize that the possible answer must be in tenths thus, it is either 14.2 or 14.3. They then identify that 14.235 is closer to 14.2 than to 14.3.

- Students should use benchmark numbers to support this work. Benchmarks are convenient numbers for comparing and rounding numbers 0, 0.5, 1, 1.5 are examples of benchmark numbers.

➤ Day 4

Objective

Review the topics covered throughout the week and take weekly quiz.

❖ Lecture

- Review topics covered throughout the week and answer any questions. Thoroughly demonstrate how to solve difficult problems.
- Numbers and Operations in base ten

Week 4: Numbers and Operations – Fractions (3 Days)

➤ Day 1

Objective

Add and subtract fractions and mixed numbers with unlike denominators by finding a common denominator and equivalent fractions to produce like denominators.

- Examples:

$$2/5 + 7/8 = 16/40 + 35/40 = 51/40$$

$$3 \frac{1}{4} - \frac{1}{6} = 3 \frac{3}{12} - \frac{2}{12} = 3 \frac{1}{12}$$

❖ Lecture:

- Students should be able to recognize LCM and understand that multiplying the denominators will always give a common denominator, but may not result in the smallest denominator.

❖ PowerPoint:

- Adding and Subtracting Unlike Fractions (LCM or LCD)
- Scholars will solve word problems involving addition and subtraction of fractions, including cases of unlike denominators.

- Examples:

- You give $1/3$ of a pan of brownies to Susan and $1/6$ of the pan of brownies to Patrick. How much of the pan of brownies did you give her?

- The common denominator is 6. $2/6 (1 \cdot 2/3 \cdot 2) + 1/6 = 3/6$, which simplifies to $1/2$.

- You have given away $1/2$ of the pan.

- Recognize an incorrect result $2/5 + 1/2 = 3/7$, by observing that $3/7 < 1/2$.

➤ Day 2

Objective

Solve word problems involving addition and subtraction of fractions, including cases of unlike denominators.

❖ Lecture:

- Scholars will use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers.

❖ PowerPoint

- Adding and Subtracting Unlike Fractions

- **Using benchmark numbers that are easy to compute**

(Students select close whole numbers for fractions or decimals to determine an estimate.)

- Mental estimation
- Area model
- Linear model
- Using a bar diagram

➤ Day 3

Objective

Review the topics covered throughout the week and take weekly quiz.

❖ Lecture

- Review topics covered throughout the week and answer any questions. Thoroughly demonstrate how to solve difficult problems.
- Numbers and Operations – Fractions

Week 5: Measurement & Data (4 Days)

➤ Day 1

Objective

Convert among different-sized standard measurement units (mass, weight, length, time, etc.) within a given measurement system (metric), and use these conversions in solving multi-step, real world problems.

Examples:

Convert 5cm to 0.05m

❖ Lecture

- King Henry Drank Ucky Dark Chocolate Milk
- Metric Conversions Power Point
- The difference between weight and mass

- What is time and how does it relate to distance.
- Scholars should explore how base-ten system supports conversions within the metric system.
 - Example:
100 cm = 1 meter

➤ Day 2

Objective

Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Use operations on fractions to solve problems involving information presented in line plots.

- Examples:
- Given different measurements of a liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.

❖ Lecture

- Students apply their understanding of operations with fractions.

❖ Power Point

- How To Find A Fraction on a Number Line

➤ Day 3

Objective

Recognize volume as an attribute of solid figures and understand concepts of volume measurement. Apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems.

- Example:
A cube with side length 1 unit, called a “unit cube”, is said to have “one cubic unit” of volume, and can be used to measure volume.
A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.

❖ Lecture

- Discuss how to find the volume of rectangular and triangular prisms.

❖ Power Point

- Volume of Prisms

➤ Day 4

Objective

Review the topics covered throughout the week and take weekly quiz.

❖ Lecture

- Review topics covered throughout the week and answer any questions. Thoroughly demonstrate how to solve difficult problems.
- Measurement & Data
- Design Pseudocode to demonstrate understandings of area and perimeter

Week 6 & 7: Geometry

➤ Day 1

Objective

Understand that attributes belonging to category of two-dimensional figures also belong to all subcategories of that category.

- Examples:
 - All rectangles have four right angles and squares are rectangles, so all squares have four right angles.
 - If the opposite sides on a figure are parallel and congruent, then the figure is a rectangle. True or False?

❖ Lecture

- Scholars should be able to reason about the attributes of shapes. Students should have experiences discussing the property of shapes and reasoning.

❖ PowerPoint

- Properties of 2D and 3D Shapes (Day 1)

➤ Day 2

Objective

Describe three-dimensional shapes by the number of edges, faces, and/or vertices as well as types of faces

❖ Lecture:

- Identifying and building a three-dimensional shape from two-dimensional representations of that object

❖ PowerPoint:

- Extension of Properties of 2D and 3D Shapes (Day 2)

➤ Day 3

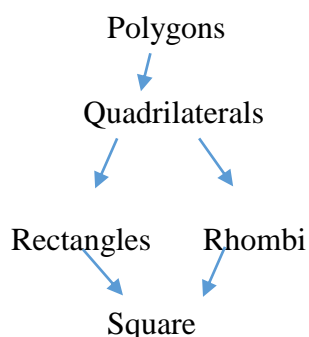
Objective

Classify two-dimensional figures in a hierarchy based on properties (polygons, triangles, and quadrilaterals).

❖ Examples:

- ❖ Create a hierarchy diagram using the following terms.
- ❖ Polygon- a closed plane figure formed from line segments that meet only at their endpoints.
- ❖ Quadrilaterals- a four-sided polygon
- ❖ Rectangles- a quadrilateral with two pairs of congruent parallel sides and four right angles.
- ❖ Rhombi- a parallelogram with all four sides equal in length.
- ❖ Square- a parallelogram with four congruent sides and four right angles.

Possible student solution.



- ❖ Lecture
 - Students should be able to reason about the attributes of shapes by examining questions like the following:
 - What are ways to classify triangles?
 - Which quadrilaterals have opposite angles congruent and why is this true of certain quadrilaterals?
 - How many lines of symmetry does a regular polygon have?

➤ Day 4

Objective

Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates.

- ❖ Lecture
 - Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel on the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate)

❖ PowerPoint

- 3-3 Coordinate Plane

➤ Day 1 (Week 7)

Objective

Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.

- ❖ Lecture (Extend learning from previous week)
 - Differentiate quadrants of coordinate plane
 - Real world application

➤ Day 2

Objective

Review the topics covered throughout the week and take weekly quiz.

- ❖ Lecture
 - Review topics covered throughout the week and answer any questions. Thoroughly demonstrate how to solve difficult problems.
 - Geometry

➤ Day 3

Objective

Review camp curriculum

- ❖ Lecture
 - Post Assessment Exam
 - Math Olympics Scavenger Hunt

➤ Day 4

Objective

Math Olympics Scavenger Hunt
Honoring Ceremony

All curriculum content in this document was derived from the Georgia Department of Education Standards for 4th, 5th, and 6th grade.