# Annual Plan for AG Services

**Course: Grade 6 Accelerated Mathematics**

In the middle grades, academically gifted students will receive differentiated instruction in the classroom setting. In Grade 6 Accelerated Math, the pacing of on-grade level material is accelerated; and students receive instruction on some Grade 7 standards (as indicated below). In addition to these instructional requirements, the classroom teacher will provide differentiation that will address how students process the curriculum and show their understanding.

## Minimum Instructional Expectations for Grade 6 Accelerated Math:

Through independent practice, small group collaboration, or whole group discussions, students identified as academically gifted in the area of math will have the opportunity to show their understand through the use of the "Are You Ready for More" practice problems from the Open Up Resources instructional materials. In addition to pacing of the course and the expectation that students receive appropriately leveled practice (i.e., the "Are You Ready for More" questions), classroom teachers will provide differentiation that addresses how students process the curriculum and show their understanding.

**Students may demonstrate mastery through, but not limited to the following instructional practices:**
Interactive Journals/Writing, Artwork, Problem Solving Creations, Advanced Computation, Scavenger Hunt, Foldables, Games, Online websites/apps, Assessment tasks, Generating real-world data for analysis, Independent/small group investigation

Each middle school will have a summative Annual Plan available to parents that will document additional opportunities for math enrichment available at their child's school.

## Course Pacing:

**Unit 1: Area and Surface Area**

**Overview:**
Students will explore area of parallelograms, triangles, and polygons using composing and decomposing shapes. Formulas for area will be developed. Surface area will also be explored through the use of "nets."

**Suggested Extensions:**

- Complete the culminating activity, which is the last lesson in the unit
  - Students will use what they have learned to design a tent (real life application) by applying strategies and formulas for finding area of polygons to find surface area
- Use of Illustrative Mathematics Tasks
  - Finding the Area of Polygons (6.G.1)
  - Nets for Pyramids and Prisms (6.G.4)

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**Unit 2: Introducing Ratios**

**Overview:**
Students will begin to explore the concept of ratios and equivalent ratios. The double number line diagrams, tape diagrams, and tables will be used to model this concept. Students will begin to investigate the term "per" as used to look at the cost of one (1) item at a certain rate and as used to describe constant speed.

**Suggested Extensions:**
- Complete the culminating activity, which is the last lesson in the unit
  - Students will use what they have learned to solve a real-world problem involving units and rates by deciding what information is needed to solve the problem, and apply that knowledge to more complex problems
- Use of Illustrative Mathematics Tasks
  - Painting a Barn (6.RP.3, 6.G.1)
  - Price Per Pound and Pounds Per Dollar (6.RP.2)

**Unit 3: Unit Rates and Percentages**

**Overview:**
In this introduction to proportional relationships, students will expand upon the concepts and skills mastered in Unit 2 by investigating unit rates. The concept of percent and percentage will be developed with the use of tables, tape diagrams, and double number lines. Expressions will also be used. Students will identify proportional relationships and will reason about situations involving unit price, constant speed, and measurement conversion.

**Suggested Extensions:**
- Complete the culminating activity, which is the last lesson in the unit
  - Students will use what they have learned to apply understanding of unit rates and percentages to make predictions involving time and cost needed to paint a room
- Use of Illustrative Mathematics Tasks
  - Unit Conversions (6.RP.3d)

**Unit 3b: Introducing Proportional Relationships (Grade 7, Unit 2)**

**Overview:**
Students will continue their learning with proportional relationships by using multiple representations (tables, equations, and graphs)

**Suggested Extensions**:
- Complete the culminating activity, which is the last lesson in the unit
  - Students will use what they have learned to solve a real-world water conservation problem involving proportional relationships
- Use of Illustrative Mathematics Tasks
  - Gym Membership Plans (7.RP.2a, c)
- Use of EngageNY Tasks
  - Ratios of Scale Drawings (7.RP.2b, 7.G.1)

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**Unit 4: Dividing Fractions**

**Overview:**
Students will learn to make sense of division situations as they make connections between multiplication and division. Lessons in this unit require students to build an understanding of the "why" division thorough tape diagrams, equations, and expressions before learning the standard algorithm for dividing fractions. After learning the standard algorithm, students will apply this knowledge as they use fractions to find areas and volumes of rectangles, triangles, and prisms. This unit concludes with a real-world activity using multiplying and dividing fractions.

**Suggested Extensions:**

- Complete the culminating activity, which is the last lesson in the unit
  - Students will use what they have learned about multiplication and division of fractions to reason about real-world problems involving volume
- Use of Illustrative Mathematics Tasks
  - Traffic Jam (6.NS.1)
- Use of Open Middle: Challenging Problems Worth Solving
  - Fraction Quotient Closest to 4/11 (6.NS.1)

**Unit 5: Arithmetic in Base Ten**

**Overview**
Students will model operations with decimals, so they may eventually build algorithms to perform those operations and solve real-world problems. Learning in this unit will lead students to use calculations with decimals to solve problems with real-world meaning.

**Suggested Extensions:**

- Complete the culminating activity, which is the last lesson in the unit
  - Students will use what they have learned about decimal operations to find surface area and to reason about real-world problems
- Use of Illustrative Mathematics Tasks
  - How Many Staples (6.NS.2)
  - Batting Averages (6.NS.2)
  - Movie Tickets (6.NS.3)

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**Unit 6: Expressions and Equations**

**Overview**
Students will represent relationships with tape diagrams and linear equations. They will use "hanger diagrams" to reason through solving linear equations and will make connections between tables, graphs, and linear equations. Students will write and evaluate expressions.

**Suggested Extensions:**
- Complete the culminating activity, which is the last lesson in the unit
  - Students will use graphs and equations to show relationships involving area, volume, and exponents
- Use of Solve Me Mobiles
  - Solve Me Puzzles (6.EE.3)

**Unit 7: Rational Numbers**

**Overview**
Students will build context in understanding positive and negative numbers. They will use number lines to plot points and to graph simple inequalities and interpret solutions in context. This learning will lead to the 7th grade unit in which students investigate operations with rational numbers.

**Suggested Extensions:**
- Use of Illustrative Math Tasks
  - Distance Between Points (6.NS.8)

**Unit 7b: Rational Number Arithmetic (Grade 7, Unit 5)**

**Overview:**
Students will compute with rational numbers. They will use tables and number line diagrams to represent sums and differences, and they will use various forms of notation to represent multiplication and division with numbers and variables.

**Suggested Extensions:**
- Complete the culminating activity, which is the last lesson in the unit
  - Students will use what they have learned about rational numbers and percentages to solve real-world problems about the stock market
- Use of Illustrative Math Tasks
  - Differences of Integers (7.NS.1)

**Unit 8: Data Sets and Distributions**

**Overview:**
The learning in this unit involves data collected as samples from populations. Students will make and interpret histograms, bar graphs, tables of frequency, and box plots. They will describe measures of center of these data sets. This will lead to 7th grade unit in which students will expand learning to probability of sample space and comparing populations by comparing samples from populations.

**Suggested Extensions:**
- Use of Illustrative Math Tasks
  - Is It Center or Is It Variability? (6.SP.2, 3)
  - Average Number of Siblings (6.SP.2, 4, 5)

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**Open Up Resources Unit #8b: Probability and Sampling (Grade 7, Unit 8)**

**Overview:**
Students will design and use simulations to determine the probability of certain outcomes and understand that long-run relative frequency is related to the expected outcome. Students will learn to represent sample space using tables, tree diagrams, and lists.

Required tasks for Accelerated Math (Grade 6):

- Through independent practice, small group collaboration, or whole group discussion students will complete the "Are You Ready for More" section found in each lesson of the Open Up Resources unit.

Suggested Extensions:

- Complete the culminating activity, which is the last lesson in the unit
  - Students will use what they have learned to analyze and compare real-world situations based on data they have collected by a random sample, calculate important measures, and determine whether the populations are meaningfully different
- Use of TapIntoTeenMinds.com
  - Three Act Math Doritos Roulette (7.SP.7)