



**Marietta City Schools**  
**2023–2024 District Unit Planner**

*Honors Grade 6 Mathematics*

Unit title	Unit 4: Building Conceptual Understanding of Expressions	MYP year	1	Unit duration (hrs)	20 hours
------------	--	----------	---	---------------------	----------

**Mastering Content and Skills through INQUIRY (Establishing the purpose of the Unit):** *What will students learn?*

**GA DoE Standards**

**Standards**

**6.PAR.6: Identify, write, evaluate, and interpret numerical and algebraic expressions as mathematical models to explain authentic situations.**

**6.MP:** Display perseverance and patience in problem-solving. Demonstrate skills and strategies needed to succeed in mathematics, including critical thinking, reasoning, and effective collaboration and expression. Seek help and apply feedback. Set and monitor goals.

**MCS.Gifted.S3C** Use a variety of strategies for solving authentic, complex, real world problems through evaluative thinking and the engineering design processes.

**MCS.Gifted.S4B** Recognize and examine the value of others strengths, thoughts, ideas, and feelings during collaboration.

**MCS.Gifted.S4D** Respectfully collaborate and effectively communicate exchanges of constructive/critical feedback.

**MCS.Gifted.S6** Students will become self-directed, independent learners.

**Concepts/Skills to be Mastered by Students**

Expectations		Evidence of Student Learning (not all inclusive; see Grade Level Overview for more details)		
6.PAR.6.1	Write and evaluate numerical expressions involving rational bases and whole-number exponents.	<b>Strategies and Methods</b> <ul style="list-style-type: none"> <li>Students should interpret relevant, mathematical situations to write and evaluate numerical expressions.</li> </ul>		
6.PAR.6.2	Determine greatest common factors and least common multiples using a variety of strategies to make sense of applicable problems.	<b>Strategies and Methods</b> <ul style="list-style-type: none"> <li>Investigate the distributive property using sums and its use in adding numbers 1-100 with a common factor.</li> <li>Students should apply these strategies to solve applicable, mathematical problems.</li> </ul>	<b>Age/Developmentally Appropriate</b> <ul style="list-style-type: none"> <li>Students should also be able to apply the least common multiple of two whole numbers less than or equal to 12 to solve applicable, mathematical problems.</li> <li>Students should be able to determine the greatest common factor of 2 whole numbers (from</li> </ul>	<b>Example</b> <ul style="list-style-type: none"> <li>Hotdogs come in a package of 8 and buns in a package of 12. How many packages of hot dogs and packages of buns would you need to purchase to have an equal number of hot dogs and buns?</li> </ul>
			1-100) and use the distributive property to express a sum of two whole numbers with a common factor as a multiple of a sum of two whole numbers with no common factors (GCF).	
6.PAR.6.3	Write and read expressions that represent operations with numbers and variables in realistic situations.	<b>Strategies and Methods</b> <ul style="list-style-type: none"> <li>Students should identify parts of an expression using mathematical terms (sum, difference, term, product, factor, quotient, coefficient, variable, constant); view one or more parts of an expression as a single entity.</li> <li>Students should translate from a word form into variable expression.</li> <li>Students should understand letters called variables represent unknown numbers and the same rules apply in operations with numbers also apply in operations with variables.</li> </ul>	<b>Examples</b> <ul style="list-style-type: none"> <li>Express the calculation "Subtract x from 9" as <math>9 - x</math>.</li> <li>Describe the expression <math>2(8+7)</math> as a product of two factors; view <math>(8+7)</math> as both a single entity and a sum of two terms.</li> <li>Some of the students at Georgia Middle School like to walk to and from school. They always walk unless it rains. Let d be the distance in miles from a student's home to the school. Write two different expressions that represent how far a student travels by walking in a two-week period if there is one rainy day each week.</li> <li>Possible Solution: The distance to school, and therefore home, is d. Thus, the student rides <math>(d + d)</math> miles in one day. Equivalently, she rides <math>(2d)</math> miles in one day. Repeatedly adding the distance traveled in one day for each school day of the week, we find that in one week the student travels <math>(2d + 2d + 2d + 2d + 2d)</math> miles. Equivalently, she travels <math>5(2d)</math> or <math>(10d)</math> miles in a normal, rain free week.</li> </ul>	

6.PAR.6.4	Evaluate expressions when given values for the variables, including expressions that arise in everyday situations.	<b>Fundamentals</b> <ul style="list-style-type: none"> <li>Students should evaluate algebraic expressions for a given value of a variable, using the order of operations.</li> <li>Students should perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).</li> </ul>	
6.PAR.6.5	Apply the properties of operations to identify and generate equivalent expressions.	<b>Example</b> <ul style="list-style-type: none"> <li>Apply the distributive property to the expression <math>3(2 + x)</math> to produce the equivalent expression <math>6 + 3x</math>; apply the distributive property to the expression <math>24x + 18y</math> to produce the equivalent expression <math>6(4x + 3y)</math>; apply properties of operations to <math>y + y + y</math> to produce the equivalent expression <math>3y</math>.</li> </ul>	<b>Age/Developmentally Appropriate</b> <ul style="list-style-type: none"> <li>This standard includes distributive property and combining like terms.</li> </ul>

**Vocabulary:** [K-12 Mathematics Glossary](#)

Associative Property of Addition	Associative Property of Multiplication	Coefficient	Commutative Property of Addition	Commutative Property of Multiplication	Constant
Distributive Property	Exponent	Fraction	Greatest Common Factor	Least Common Multiple	Like Terms
Order of Operations	Term	Variable			

Key concept	Related concept(s)	Global context
Logic	Pattern Model Measurement	Orientation in Time and Space
<b>Statement of inquiry</b>		
Expressions, equations and inequalities communicate real world scenarios through symbols, numbers, and algebraic thinking.		
<b>Inquiry questions</b>		

**Factual**— What is the order of operations? What is the purpose of an exponent? How are exponents used when evaluating expressions? How are the properties used to evaluate expressions? What is the purpose of a variable?

**Conceptual**— How can verbal expressions and algebraic expressions communicate the same information? How can I tell if two expressions are equivalent? What strategies help me to understand and represent real life situations mathematically?

**Debatable**— Which property of addition or multiplication are the most helpful for writing an equivalent expression?

MYP Objectives	Assessment Tasks	
<i>What specific MYP <b>objectives</b> will be addressed during this unit?</i>	<i><b>Relationship</b> between summative assessment task(s) and statement of inquiry:</i>	<i>List of common formative and summative assessments.</i>
Criterion A -Knowing and Understanding  Criterion C- Communication	Students will be able to represent, evaluate, and translate different parts of an algebraic expression in real world mathematical problems. Students will also be able to use the properties to identify and generate equivalent expressions.	<b><u>Formative Assessment(s):</u></b> CFA MYP Task: Build-a-Dog <b><u>Summative Assessment(s):</u></b> Unit 3 Test - all standards MYP Assessment - Gardening Distributive Property Project
Approaches to learning (ATL)		
<p> <b>Category:</b> Social  <b>Cluster:</b> Collaboration Skills  <b>Skill Indicator:</b>            Give and receive meaningful feedback.         </p> <p> <b>Category:</b> Communication  <b>Cluster:</b> Communication         </p>		

**Skill Indicator:** Read critically and for comprehension

<b><u>Learning Experiences</u></b> Add additional rows below as needed.		
Objective or Content	Learning Experiences	Personalized Learning and Differentiation
<b>6.PAR.6.3</b> Write and read expressions that represent operations with numbers and variables in realistic situations.	<b>Build a Dog</b> In this task students will be able to create a pattern and use it to read, write, and create an algebraic expression in a fun and unique way. Students will use the appropriate tools to model mathematically and interpret the model as an expression. Students must reason abstractly and quantitatively when developing expressions and solving problems. Teachers can use this opportunity to formatively assess student's understanding of 6th Grade standard EE.2.	Students will be supported through intentional planning and implementation using the 5 Practices. Teachers will support through assessing and advancing questions and aggressive monitoring of students through the task. Students will have access to T charts and algebra tiles to support their learning.
<b>6.PAR.6.5</b> Apply the properties of operations to identify and generate equivalent expressions.	<b>Combining Like Terms Using Algebra Tiles</b> In this task students will be able to use multiple representations to model and combine like terms in an expression. Students will be expected to make sense of problems through the use of manipulatives and make connections between the concrete representation and the more abstract, mathematical expressions.	Students will be intentionally grouped and provided with support through intentional planning and implementation using the 5 Practices and monitoring tool that promotes math discourse within their groups.
<b>Content Resources</b>		
<a href="#">Georgia Standards Lessons and Resources website</a> Savvas Topic 3		