



Marietta City Schools
2023–2024 District Unit Planner

Grade 6 Mathematics

Unit title	Unit 4: Building Conceptual Understanding of Expressions	MYP year	1	Unit duration (hrs)	25
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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.

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.	Strategies and Methods <ul style="list-style-type: none"> Students should interpret relevant, mathematical situations to write and evaluate numerical expressions. 		
6.PAR.6.2	Determine greatest common factors and least common multiples using a variety of strategies to make sense of applicable problems.	Strategies and Methods <ul style="list-style-type: none"> Investigate the distributive property using sums and its use in adding numbers 1-100 with a common factor. Students should apply these strategies to solve applicable, mathematical problems. 	Age/Developmentally Appropriate <ul style="list-style-type: none"> 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. Students should be able to determine the greatest common factor of 2 whole numbers (from 	Example <ul style="list-style-type: none"> 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?

			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.	Strategies and Methods <ul style="list-style-type: none"> 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. Students should translate from a word form into variable expression. Students should understand letters called variables represent unknown numbers and the same rules apply in operations with numbers also apply in operations with variables. 	Examples <ul style="list-style-type: none"> Express the calculation "Subtract x from 9" as $9 - x$. Describe the expression $2(8+7)$ as a product of two factors; view $(8+7)$ as both a single entity and a sum of two terms. 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. Possible Solution: The distance to school, and therefore home, is d. Thus, the student rides $(d + d)$ miles in one day. Equivalently, she rides $(2d)$ 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 $(2d + 2d + 2d + 2d + 2d)$ miles. Equivalently, she travels $5(2d)$ or $(10d)$ miles in a normal, rain free week. 	
6.PAR.6.4	Evaluate expressions when given values for the variables, including expressions that arise in everyday situations.	Fundamentals <ul style="list-style-type: none"> Students should evaluate algebraic expressions for a given value of a variable, using the order of operations. 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). 		
6.PAR.6.5	Apply the properties of operations to identify and generate equivalent expressions.	Example <ul style="list-style-type: none"> Apply the distributive property to the expression $3(2 + x)$ to produce the equivalent expression $6 + 3x$; apply the distributive property to the expression $24x + 18y$ to produce the equivalent expression $6(4x + 3y)$; apply properties of operations to $y + y + y$ to produce the equivalent expression $3y$. 	Age/Developmentally Appropriate <ul style="list-style-type: none"> This standard includes distributive property and combining like terms. 	

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

Algebraic Expression	Distributive Property	Associative Property of Addition	Exponent	Associative Property of Multiplication	Expression
Coefficient	Like Terms	Commutative Property of Addition	Order of Operations	Commutative Property of Multiplication	Term
Constant	Variable	Least Common Multiple	Greatest Common Factors		
Key concept		Related concept(s)		Global context	
Logic		Pattern Model Measurement		Orientation in Time and Space	
Statement of inquiry					
Expressions, equations and inequalities communicate real world scenarios through symbols, numbers, and algebraic thinking.					
Inquiry questions					
Factual: <ul style="list-style-type: none">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: <ul style="list-style-type: none">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 objectives will be addressed during this unit?</i>	<i>Relationship between summative assessment task(s) and statement of inquiry:</i>	<i>List of common formative and summative assessments.</i>
Criteria A (Knowing and Understanding) Criteria C (Communication)	Working with expressions and equations containing variables allows students to form generalizations. Students should think of variables as quantities that vary instead of as letters that represent set values.	<u>Formative Assessment(s):</u> Unit 4 CFA <u>Summative Assessment(s):</u> Unit 4 Test Topic 3 Expressions MYP 2023-2024
Approaches to learning (ATL)		
Category: Social Cluster: Collaboration Skills Skill Indicator: Give and receive meaningful feedback. Category: Communication Cluster: Communication Skill Indicator: Read critically and for comprehension		

<u>Learning Experiences</u> Add additional rows below as needed.		
Objective or Content	Learning Experiences	Personalized Learning and Differentiation
6.PAR.6.1 Write and evaluate numerical expressions involving rational bases and whole number exponents. 6.PAR.6.5 Apply the properties of operations to identify and generate equivalent expressions.	Does Order Matter? In this learning plan, students will use the order of operations to evaluate exponential expressions for equivalence. Students will also discover the necessity of following the order of operations.	Explore patterns in numerical expressions in different ways using four-function and scientific calculators. Allot substantial instructional time for students to use, discuss, and make connections among numerical expressions.
Content Resources		
DOE Unit 4 Savvas Topic 3 Intervention Tasks (DOE)		