Math 7 UNIT 1 OVERVIEW: Integers and Expressions

Unit Outcomes At the end of this unit, your student should be able to:	**Key Vocabulary** Terms to deepen the student's understanding	
✓ Add, subtract, multiply, and divide integers ✓ Solve problems using order of operations and combining like terms with integers ✓ Solve problems using the distributive property with integers ✓ Write expressions from words and evaluate expressions	✓ Absolute Value ✓ Additive Inverse ✓ Additive Identity Property of Zero ✓ Addition Property of Opposites ✓ Constant ✓ Distributive Property ✓ Equivalent Expressions ✓ Equation	✓ Expression ✓ Evaluate ✓ Integer ✓ Rational Number ✓ Subtraction Property of Equality ✓ Whole Numbers

Key Standards Addressed Connections to Common Core/NC Essential Standards	**Where This Unit Fits** Connections to prior and future learning
7.EE.1- Apply operations to add, subtract, factor, and expand linear expressions with rational coefficients. 7.EE.2- Understand that rewriting an expression in different, yet equivalent, forms in a problem can show how the quantities in it are related. 7.EE.3- Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals). Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. 7.NS.1 - Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. 7.NS.1a. - Describe situations in which opposite quantities combine to make 0. For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged. 7.NS.1b. - Understand $p + q$ as the number located a distance $\|q\|$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.	**Coming into this unit, students should have a strong foundation in:** ✓ Operations with whole numbers ✓ Evaluating expressions with whole numbers ✓ Order of operations with whole numbers **This unit builds to the following future skills and concepts:** ✓ Solving equations with rational numbers ✓ Working with rational numbers ✓ Solving inequalities with rational numbers ✓ Graphing in four quadrants ✓ Linear equations

Math 7 UNIT 1 OVERVIEW: Integers and Expressions

7.NS.1c.- Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts. 7.NS.1d. - Apply properties of operations as strategies to add and subtract rational numbers. 7.NS.2a - Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (-1)(-1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts. 7.NS.2b- Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real-world contexts. 7.NS.2c- Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts. 7.NS.3- Solve real-world and mathematical problems involving the four operations with rational numbers.	
Additional Resources Materials to support understanding and enrichment	**"Learning Checks"** Questions Parents Can Use to Assess Understanding
✓ Teaching videos made by Wake County teachers ✓ WCPSS YouTube Channel – Math Playlist ✓ Understanding the value of negative numbers ✓ Understanding adding and subtracting integers ✓ Discovery education – all Wake county students have an account and when signed in there are many resources for students	✓ What are some ways integers can be modeled? ✓ Where do you see integers in the real world? ✓ What are some patterns you've seen when adding integers? Subtracting integers? ✓ What are the rules for multiplying and dividing integers? Why do they work? ✓ What does absolute value mean? ✓ What is the inverse of addition? Subtraction? Multiplication? Division? ✓ Is there more than one way to write an expression? ✓ How does the distributive property work? ✓ What are some examples of "like terms"?