Candies™ and Cash! Integers	**Student/Class Goal** Students often encounter integers in everyday life, but are unsure how to perform mathematical operations with these numbers.
Outcome (*lesson objective*) Students will be able to solve addition, subtraction, multiplication, and division problems using integers, understand the concept of absolute value, and apply these methods to real-world events.	**Time Frame** ~2 hours
Standard *Use Math to Solve Problems and Communicate*	**NRS EFL 6**

Components of Performance (COPs)	**Activity Addresses COPs** (process)
Understand, interpret, and work with pictures, numbers, and symbolic information.	Students will construct a number line that shows the relationships between positive and negative decimals, fractions, and whole numbers.
Apply knowledge of mathematical concepts and procedures to figure out how to answer a question, solve a problem, make a prediction, or carry out a task that has a mathematical dimension.	Students will use integer concepts to solve problems involving money, temperature, and elevation.
Define and select data to be used in solving the problem.	Students will be able to extract the data necessary to solve word problems
Determine the degree of precision required by the situation.	Students will be able to accurately solve integer problems involving whole numbers, fractions, and decimals to the appropriate place value. Students will confirm results using a calculator.
Solve problem using appropriate quantitative procedures and verify that the results are reasonable.	Students will recognize if data or data sets are reasonable by observing the points on a number line.
Communicate results using a variety of mathematical representations, including graphs, charts, tables, and algebraic models.	Students will represent results on number lines, check registers, in words, or algebraic models.

Activity Addresses Benchmarks (content)
M.6.1, M.6.2, M.6.26, M.6.27, M.6.29, M.6.30, M.6.32

Materials
White board, base 10 or base 20 individual dry erase boards, number tiles, picture of a thermometer, number line, calculators, two pairs of shoes

Learner Prior Knowledge
Addition, subtraction, multiplication, and division of positive whole numbers, decimals, and fractions.

Instructional Activities
Step 1
The teacher will demonstrate the concept of matched and mismatched shoes to illustrate the rules for multiplying and dividing integers. If a pair of shoes matches, regardless of whether the shoes are red or black, it is positive (your classmates will not laugh at you!) If a pair of shoes does not match, one red and one black shoe, it is negative (your classmates will laugh at you!)

This rule also applies to multiplying and dividing integers. If you multiply or divide two integers with matching signs, your answer will be positive. If you multiply or divide two integers with different signs, your answer will be negative.

Step 2
Teacher will demonstrate how to relate positive numbers to having money or getting a paycheck and negative numbers to owing money or getting a bill in order to solve addition integer problems. If you get two paychecks (two positive numbers), you add the two checks to get the total, which is a positive amount. If you get two bills (two negative numbers), you owe the total of the two bills, which is a negative amount. If you get a paycheck and a bill (one positive and one negative number), you first have to find the difference between the two (either how much money you have left after you pay the bill, or how much more money you need in order to pay the whole bill). If your paycheck was more than the bill, you have a positive amount left in your account. If your bill was more than your paycheck, than you have a negative amount in your account.

Step 3
Students will be shown how to change subtraction problems involving integers into addition problems, to which they can apply the rules they have been taught for the addition of integers. To change subtraction problems to addition, remember "Keep, Change, Flip." Keep the sign of the first number of the problem the same, change the minus sign to a plus sign, then flip the sign of the second number (negative becomes positive and vice versa).

Step 4
The concept of absolute value will be introduced. Absolute value shows the distance a number is from zero on a number line. Applications involving distance will be discussed. For example, if one student lives four blocks east of school, and another student lives four blocks west of school, neither distance is considered negative.

Step 5
Students will practice these skills using problems from *Number Power Algebra* and *Cord Algebra I.*

Step 6
Students will utilize their skills with integers by working on a business bookkeeping ledger.

Step 7
Word problems will be introduced that use integers in real-life applications, such as money, temperature, and elevation.

Assessment/Evidence (*based on outcome*)
SAMS, teacher-made assessment

Teacher Reflection/Lesson Evaluation
Not yet completed

Next Steps