Lesson 2: Interpreting and Applying CCSS for Mathematics

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In this assignment, I will generate a lesson plan that promotes mathematical thinking related to ratios and proportional relationships and the number system for my 6th graders. Also, I will explain how my students can demonstrate mastery of conceptual understanding, computational fluency, and applications.

The standard of the lesson of the week understands positive and negative numbers (6.NS.C5) which is under the cluster of apply and extend previous understanding of numbers to the system of rational numbers. Mathematically proficient students communicate precisely by engaging in discussion about their reasoning using appropriate mathematical language. The terms students learn to use with increasing with this cluster are rational numbers, opposites, absolute value, greater than, less than, origin, quadrants, and coordinate plane.

The lesson will include a hands-on activity and formative assessment.

Lesson Plan

6. NS.C5: "Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation (Common Core State Standards Initiative, 2017).

The critical goals of this lessons are:

- Students use rational numbers (fractions, decimals, and integers) to represent real-world contexts and understand the meaning of 0 in each situation.

- Students will be able to demonstrate the application of positive and negative integers by playing integers cards and using a review sheet.
- Students can identify and express the words positive, negative, integers, and zero.

After warm-up questions of the previous lesson, my students will try to write the essential terms of this lesson in order to understand the new expressions. Then, they will be given a set of integer cards to order those least to greatest in a particular time as a group of four students. By doing this, each team member will cooperate to finish ordering and computing with the classmates.

The card game will give an approach to the students to build off a relationship among integers, especially with the negative ones. They will figure out the negative signs in front of numbers make the bigger one smaller, and smaller one bigger. Standards for mathematical practices are number 1, 4, and 7 are related to this lesson. Also, I will have a formal assessment after a practice sheet to students to make sure their mathematical skills are improved.

1) Joel loves underwater diving. His houseboat is 250 feet above sea level. He jumped from that level. He went 600 feet below sea level. How many feet did Joel go under the water?

2) If the temperature rises to 80 degrees, which number would display this best? a) -80 b) -180 c) 180 d) 80

3) In the morning the temperature was 5° C. In the evening it was 15° C. How many degrees warmer or colder did it get?

4) The temperature goes down 20 degrees. Which number displays this change? a) 20 b) 120 c) -20 d) -120

5) Gavin enjoys skydiving. He jumped from a helicopter at 8000 feet above sea level. He then landed on a mountain at 5000 feet above sea level. How many feet did Gavin descend?

6) The temperature goes down 20 degrees, which option shows this? a) 20 b) 120 c) -20 d) -120

7) At noon the temperature was 30° C. At night, it becomes 25° C. How many degrees warmer or colder did it get?

8) The temperature goes up by 90 degrees, which option shows this? a) 90 b) 190 c) -90 d) -190

9) If the temperature is 40 degrees Celsius, is the weather warm or cold?

10) At midnight the temperature was 20° C. In the morning, it becomes 25° C. How many degrees warmer or colder did it get?

The students will be able to demonstrate and understand positive and negative numbers while solving real-life word problems.

Overall, the Common Core State Standards (CCSS) were developed through the collaboration of teachers, administrators, and experts. Even though these standards may vary in different states, CCSSM are crucial for educators to have a set and concrete structure for teaching. Also, applying SMP makes the instruction more meaningful and teachable. Mateas (2016) stated that “for the mathematical practices to truly become a habit or practice that students will use on their own, students need multiple opportunities, across several years, to engage in the thinking called for in the SMP.”

References

Common Core State Standards Initiative. (2017). Standards for Mathematical Practice | *Common Core State Standards Initiative*. Retrieved from http://www.corestandards.org/Math/Practice/ (Links to an external site.)

Mateas, V. (2016). Debunking Myths about the Standards for Mathematical Practice. *Mathematics Teaching in the Middle School*, *22*(2), 92-99.