Integers

Lesson 2: Comparing and Ordering Integers

Introduction:
This lesson is designed for a sixth grade class of 26-30 students
Materials/Handouts/Manipulatives:

- Timeline on the floor, football
- Math Book

Goals:

- Students will understand how to order integers and compare integers using tables and number lines.
- Continue and review the introduction of integers (Lesson 9-1). Review integers, opposites, absolute value, and origin.
- **N.ME.06.017** Locate negative rational numbers (including integers) on the number line. Know that numbers and their negatives add to 0, and are on the opposite sides and at an equal distance from zero.

Setting:
The students sit in pairs at tables. There are no special seating arrangements for this lesson.

Teaching the Lesson:
We will begin the lesson by grading the homework from Lesson 9-1. Next, we will review Lesson 9-1. It is important the students understand absolute value, opposite numbers, integers, and origin from the previous lesson. Use the number line on the floor to review. Place a student at -15 and 15. Use this example to review the vocabulary. Using the children as part of the problem will help students stay engaged in the lesson.

To teach about ordering and comparing integers, use a real world example of temperatures and thermometers.
Example Problem:

- Take a look at these temperatures. (Use positive and negative examples, such as -15 degrees and 10 degrees) Ask: Which city had the higher actual temperature? How do you know?
- Sketch a thermometer. Which temperature is the warmest? The coldest?

*When integers have two different signs, it's easy to decide which is greater. (Positive will always be greater) Comparing two negative integers is more difficult.

More Example Problems:

- Use a number line to compare integers. Draw one on the overhead and use the number line on the classroom floor. Who is the farthest left? Who is the farthest right? The person the farthest left is the least amount. The person the farthest right is the greatest amount.

- Using depths, order the mines from deepest to least deep:
  Kolar, India –8,604 ft, Western Deep, South Africa –12,600 ft, Nova Lima, Brazil 8, 052 ft, and Boksburg, South Africa, -11, 248 ft.
- Using football, plot a loss of –3 and –6 yards on a number line. Which play had more yards lost? "Play" football by creating plays with different amounts of yards gained or lost. Order the plays from greatest to least amount of yards.

*On a number line, the farther to the left, or the farther down a number is, the *less* it is. So a negative number close to zero, such as –2 is greater than –25,000.
Review: **<** means *less than* and > means *greater than*

Evaluating the Lesson:
Overall, the lesson went really well. The students had a good grasp on ordering integers from greatest to least. Having various real life examples provided students with a concrete view of comparing and ordering integers. The lesson was successful because the students displayed an interest in learning. The students asked questions, volunteered for examples, and participated in discussion.

Reflection:
This lessons intent is to strengthen the ideas introduced in lesson 1 and I feel that the discussions the class had really helped solidify these ideas. The kids started to get into the idea of negative integers and how this is displayed on a number line. I would change the lesson in a way that I think the students got a misconception that when you go left it always means negative. I would add a section providing clear ideas that direction doesn't always correlate with negative and positive integers, but rather the measurement of those directions specify what will be negative and positive.