

Integers

Lesson 1: Positive and Negative Numbers

Introduction:

This lesson is designed for a sixth grade class of 26-30 students

Materials Needed:

- Picture of Sparty
- Large piece of white paper
- Permanent marker of any color easily visible
- A large Thermometer or a picture of one that includes temperatures below zero.
- Worksheet with temperatures and a thermometer picture.

Goals:

- **Introduce using integers to represent real-world quantities.**
- *Find the opposite of an integer.*
- *Find absolute value.*
- *Add and subtract positive and negative integers.*
- *Use a number line.*
- **N.ME.06.17** *Locate negative rational numbers (including integers) on the number line; know that numbers and their negatives add to 0 and are on opposite sides and at equal distances 0, on a number line.*

Setting:

Students will be grouped according to the table that they normally sit at. The groups aren't really necessary but are of 3-4 students.

Teaching The Lesson:

- Present the idea of an integer and what it means. Draw off kids' examples to explain how integers are used all around us to represent quantities.
- Draw a football player on the board or overhead. Make sure the picture is 2-D and the player can only move forward and backward. Have the spot underneath his feet be the origin.
- Explain to the children what the picture is and show them that the player in this picture can only move forward or backward.
- Have the player move 7 paces forward on one play.
- Then have the player lose 10 paces, moving backwards. Ask the students how they could represent where on the field the player is in respect to his original spot.
- Draw out the idea of negative numbers. Do a few more example of the player moving back and forth; making careful note that underneath the player is a number line. Make sure to include the idea of absolute value being the distance from the origin.
- Move on to the temperature at the game.
- Use a thermometer to help understand the difference between a positive and a negative number. Work your way down from 10 degrees. If it got 10 degrees colder, what would the temperature be? What if it got 10 degrees colder again, then what would the temperature be?
- Continue this activity by discussing what is colder, 0 degrees or -10 degrees and then write the numbers on the board to help visualize. Make sure that a clear number line is drawn even though the students don't know what one is yet.

- Show that a negative integer and its positive integer are the same distance away from zero and so if you add them together it will be equal to 0.
- Provide the worksheet that contains practice in finding what integers are bigger than others. Have the students work on this in class with the help of the teacher.

Evaluating The Lesson:

This lesson is worth the time spent on teaching students about integers. The football and temperature examples went quite well and engaged the students. On the other hand, the football example didn't go as well as thought, for some students heard the term football and shut down not giving it a change since they didn't know how to play the game. The group conversation about negative numbers spurring from these activities was, however, was excellent. I determined the lesson a success because the students excelled at the practice sheet I made up for them which contained numbers, both negative and positive, that asked them to decide which were bigger or smaller.

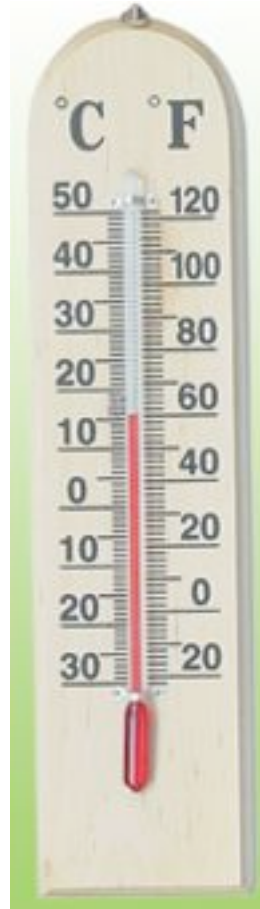
Reactions:

I feel that the lesson went well. The students were very engaged in the idea of using real word examples of negative numbers, football and temperature, to learn about integers. If I could go back and change the lesson I would add an activity that uses manipulatives to assist the students in their learning of negative numbers. I realized that this lesson would leave out all students that are hands on learners. The visual and auditory aspects of the lesson are great, but some children will need the additional activity to learn the concept.

Integers

1. *Circle the numbers that are the largest.*

0	2
0	-2
15	0
-15	0
7	-10
10	7
75	95
0	25
-25	-15
-1	-17
-5	0
-9	-10
-84	-85
-15	-90
-1	0



2. *Create four examples of your own including a negative and positive integer.*