Math Lesson: Downside Up- from mathalicious.com

State or National Math Standard	Standard for Mathematics Practice:
CCSS.MATH.CONTENT.6.NS.C.5 **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.** CCSS.MATH.CONTENT.6.NS.C.6 **Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the**	CCSS.MATH.PRACTICE.MP3 Construct viable arguments and critique the reasoning of others. CCSS.MATH.PRACTICE.MP4 Model with mathematics.

plane with negative number coordinates.	

Lesson Objective: What do you want your students to know, understand, and be able to do.

Students will be able to have a concrete understanding of positive and negative numbers and absolute value.

Rational: How does this lesson connect to the lives of students (Culturally Relevant)?

Using the idea of feelings being positive and negative, students will investigate how feelings can fluctuate from positive to negative over a week. Students will also explore the idea of absolute value by considering the intensity of both positive and negative feelings. This will ground the abstract idea of positive and negative numbers and absolute value.

Student Goal:

Students will take notes on positive and negative numbers and absolute value. Students will apply those ideas to the concrete and culturally relevant idea of feelings.

Planning

Activity:	**Materials:**
Notes in interactive student notebook.	Student notebook
Downside up lesson from Mathalicious	Computer and projector for video clip from the movie “Inside Out.”
Procedure:	Handouts.

After completing classroom notes, and a short practice on ordering positive and negative values and determining absolute value, students will watch a short clip from the movie “Inside Out.” Students watch the trailer from the 2015 Pixar Movie, Inside Out, which introduces fivehuman emotions: joy, sadness, anger, disgust, and fear. Ask students what comes to mind when they think of each emotion. Following the clip, students will discuss feelings. Working in groups, they will analyze graphs that four different students made of their feelings over a week. Interpret and analyze four graphs depicting how someone felt over a week period, from -5 (awful) to 5 (great). Find differences between positive and negative values to determine which days felt better than others. Create new graphs showing the intensity (absolute value) of each day. Discuss which matters more: how good you feel or how much you feel. Sketch an ideal week and explain it to others.	

Questions/Prompts: (to support student thinking)	**Differentiation: (Gifted, Ell, SPED)**

According to the movie trailer, what are the five main human emotions? What comes to mind when you think of each emotion? Of the five emotions, which do you think are "good" and which do you think are "bad?" Why? **Assessment: (check for understanding; formal and informal)** I will be collecting and assessing the handout where they analyze the different graphs, graph the different intensities of each student, and then make a graph of their ideal week. I will be looking for correct graphs and arguments that are supported with reasons.	Groups will be random, with gifted and special education mixed. Students in each group have roles, so that all are required to participate. Students will work together to ensure that every in the group has completed their graphs. The members of a group do NOT need to have the same answer, but they do need to be able to explain WHY another person in their group chose a different ideal week than they did.

Reflection

About Planning: (effectiveness; real-life connection)	**About Teaching: (Reach all learners; Got it!)**