

# Interacting with Integers

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Materials from today's session will be available at:

<http://padlet.com/ADelliger/Integers>

If you have a QR code reader on your electronic device you can scan this image and go straight to the resources!

### Coherently Teaching Integers

- The foundations for integers start in the early years.
- Building on a solid number sense foundation will help develop conceptual understanding
  - Place value, number bonds, decomposing numbers
- Builds to future problem solving and often present when working with functions

Notes and Ideas:

### Math Anxiety

- Anticipation of doing math is often the worst and is read in the brain like pain
- Amount of math anxiety is NOT necessarily tied to math ability
- Math anxiety hinders working memory making it hard to complete mental math
- Teachers are a major source of anxiety!
- May also come from a lack of conceptual understanding of a topic and relying on poorly understood "tricks" or memory devices
  - "Two positives make a negative" Students remember this, but not when or how to use it!
  - Be comfortable pulling back to the intuitive, concrete, and pictorial levels of knowing

Notes and Ideas:

### Integer Tools and Games

- Games
  - Low stress ways to experience and practice integer concepts
  - Build fluency, speed, accuracy, etc.
  - Can be created at low or no cost and easily adaptable for religious/cultural beliefs
  - Reduce math anxiety and can assist in building conceptual understanding
  - Directions for games/activities used today and links to more ideas on Padlet
- Number of the Day/Post It to Prove It

- Great way for students to demonstrate Mathematical Practice 3: Construct Viable Arguments and Critique the Reasoning of Others
- No prep required- once you pick a number
- Can be used as a form of assessment
- Great for multi-level classrooms and as bell ringer and exit tickets
- Foldables
  - Part of an interactive notebook or stand alone
  - Great use of Mathematical Practice 5: Using tools strategically

**Notes and Ideas:**

## Integer Applications

- Use traditional examples of temperature, money, football yards
  - People connect to these easily and there are lots of resources available
- Reach outside the box!
  - Elevations when sea level as zero
  - NASA recording time before lift-off (T minus 9, 8, 7)
  - Photo editing software, those scales you slide to adjust color, brightness, contrast, etc. use integers to describe change from the original, which is set as zero. Brighter is positive, darker is negative for example.
  - Walking up or down floors/elevators (especially underground/sublevel parking)

**Notes and Ideas:**

## Games Demonstrated Today:

- Walk the Line:
  - Concrete way to interact with the number line
  - Physical activity to allow students kinesthetic learning opportunity
  - Leave a number line up in your room and refer to it often!
  - Many adaptations and connections to other content areas
- Human Counters
  - Why only use small counters on a table? Turn your class into the counters!
  - Use paper plates as counters
  - Require students to explain what is happening when acting out their problems! (Don't forget to use academic language and attend to precision when explaining the process!)
- Integer Draw
  - Uses the concept of 'red' for negatives and 'black' for positives
  - Playing cards are easy to prep, but other cards can be used if necessary
  - Easy to adapt rules for different purposes- highest value, lowest value, etc.

**Notes and Ideas:**