

Using Manipulatives to Enhance Basic Concepts

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Students

- ▶ Students come in with a Wisconsin Placement score of 0 and a Math ACT of <16
- ▶ >33% of the students are students of color
- ▶ About 5% are veterans
- ▶ About 40% are first generation college students
- ▶ About 20% are international students
- ▶ Most students have experienced math or test anxiety
- ▶ Most students have not been successful at math in their previous experience

The Class

- ▶ Content is from Basic Math through Beginning Algebra
- ▶ Vertical Redesign
- ▶ Flipped
- ▶ 6 developmental credits
- ▶ 4-75 minute “lecture” classes
- ▶ 1-75 minute “discussion” class
- ▶ Mastery based software used for homework

Modular Approach

Students learn concepts across all basic algebraic structures in a group, to reinforce similarity

For example – division of whole numbers, division of fractions, division of polynomials, and so on

Groups:

1. Definitions – Numbers to Functions
2. Arithmetic Operations – Emphasis placed on the similarities between different mathematical objects. Inverse operations are taught early.
3. Solving all types of equations and inequalities side by side
4. Graphing and Applications

Different Lecture Approaches

- ▶ We use manipulatives including
 - ▶ Base 10 blocks
 - ▶ Algebra Tiles
 - ▶ Fraction circles
- ▶ Worksheets to help enhance discovering the “Why”
- ▶ Spiral reviews on previous concepts

Activities

- ▶ Get in a group of 2-3
- ▶ Make sure to have a set of Algebra Tiles
- ▶ Start the worksheet

Other ideas...

- ▶ Give students a create your own problem
- ▶ Give students partial/open ended problems
- ▶ Incorporate short reviews

- ▶ Any other suggestions?

Any Questions?

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