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Math for Elementary Teachers III

Summary of *Teaching Fractions: Rules and Reason*

Teaching Fractions: Rules and Reason by Don Ploger and Michael Rooney informs educators how to teach fractions so students learn and understand the rules of fractions. Ploger and Rooney say, “Nothing is wrong with having rules. The question is whether those rules are applied with understanding.” Beginning with fraction equivalence and then progressing to fraction addition and subtraction with the use of models and demonstrations, Ploger and Rooney explain a constructivist approach to give students foundational understandings behind the algorithmic rules.

To teach fraction equivalence they list a fraction’s equivalent forms from smallest to greatest and have the students find patterns. For instance, $\frac{1}{2}$, $\frac{2}{4}$, $\frac{3}{6}$, $\frac{4}{8}$, etc.. In this list students can find patterns by analyzing the denominators and numerators. Allowing the students to experiment with the lists of fraction equivalencies develops their understanding of numerators and denominators. Also, students learn the relationships of equivalent fractions and what it means for a fraction to be in its simplest form.

To teach addition and subtraction of fractions Ploger and Rooney use models of fractions, such as breaking a circle in to halves and thirds. Then using questions, such as, “How can we cover the total region of $\frac{1}{2}$ and $\frac{1}{3}$ with the same size or kind of pieces?” Ploger and Rooney demonstrate finding a common factor to add and subtract fractions.

Once students understand the rational behind fractions, Ploger and Rooney teach them the rules and algorithms of fractions. This way, students are not just learning rules with no meaning behind them.

Teaching Fractions: Rules and Reason was an excellent article for math educators. Ploger and Rooney share their methods of using models and demonstrations

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to teach the reasoning behind the rules and algorithms of fractions. Using their methods

teachers can help students store the mathematical information in their long term

memories.

Source:

Ploger, Don and Michael Rooney. **Teaching Children Mathematics**. *Teaching*

Fractions: Rules and Reason. Aug. 2005. 12-17.