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**Investigating mathematical thinking and discourse with ratio triplets.**

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Summary: Teachers know that real mathematical understanding includes the higher-level skills of comparing, contrasting, and making connections among different computational approaches. What mathematical connections can students make when asked to explore a task that is posed in three different ways? This article describes a unique task structure that helps to foster classroom discourse and reveal students' mathematical conceptions. The activity, called Ratio Triplets, referred to a set of three versions of one particular mathematics problem. Although the task centers on a fairly common type of proportional reasoning task, the authors found that using different versions of the task afforded a good opportunity for students to consider the meaning of ratios in multiple ways. Here, the authors describe the three versions and how they used them in class. Then, they profile some of the variations in mathematical thinking that students demonstrated. Examples from each version are provided. Finally, the authors highlight the benefits gained from having students discuss all three versions. (Contains 5 figures.) (ERIC)

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